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VOLUME XIV NO. 1

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AUTUMN NUMBER
1935

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VOLUME XIV NUMBER 1

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HUMAN RELATIONS WITHIN INDUSTRIAL GROUPS

BY T. N. WHITEHEAD

MODERN society faces two interrelated crises. On the one hand, economic activity is showing evidence of an alarming and a growing tendency towards instability; whilst, on the other hand, the mass of industrial workers are failing to take their place as an integral part of the industrial society, thus further threatening the social and economic structure.

No group of humans can show a greater relative material progress than the industrial workers. Within the last hundred years or so conditions of labor and labor's purchasing power have improved beyond all reasonable expectation; the material resources of an American employee today are beyond the wildest dreams of his great-grandfather. And yet the disconcerting fact remains that labor unrest is as great a problem today as in the past. This may be interpreted in a number of ways: labor has painfully acquired its right to be heard; quiescence in the past was only a measure of its weakness; etc. No doubt there is truth in all such statements; but the fact remains that widespread unrest is not the normal condition of happy, integrated societies. And, granting the obvious necessity of an adequate physical standard, it is a question whether the employee has progressed so very far along the road towards human satisfaction. Material progress has failed to bring with it any corresponding measure of contentment.

We are trained in the language of economic abstraction. We speak of work as disutility, and reckon the fruits of human activity in terms of money. But it is only in a sick society that satisfaction is measured in terms of money and purposeful activity is counted a disutility.

The fact is that human satisfaction is ultimately a social phenomenon, and our very misuse of this word "social" shows how far we are from explicitly acknowledging the fact. We speak of

social occasions, meaning weddings or parties; or we refer to social evils—strikes and divorces. We speak of society as though it implied night clubs, recreational activities, or class differentiations of the European type. But very rarely do we use the word to cover all interhuman activity, whatever the explicit purpose of that activity may be. In this, its true sense, modern industry is the largest type of a social organization that humans have ever evolved. The greater part of a worker's interpersonal relations, and many of the most significant of those relations, take place within the walls of the industrial organization for which he, or she, works. Here, if anywhere, must the worker obtain much of his satisfaction as a member of society. Through his working relationships he must seek to satisfy his need for a secure position within a stable group.

Labor Unrest

Social unrest can always be traced to some maladjustment, some privation, in human relationship; and the nature of labor unrest discloses this very fact. Let us look at labor unrest as it is found in practice. Any mention of unrest raises the picture of industrial strikes. But a strike, although the most dramatic, is by no means the only manifestation of unrest.

1. Unrest is often, though by no means always, related to wages. But even here, though often expressed as a dispute about absolute wages, the real problem is frequently one of wage differentials. Every experienced executive knows this. I knew a highly skilled mechanic who rather suddenly became dissatisfied with his wages. His employer offered him a raise, and, surprisingly, this was refused on the ground that he—the mechanic—had all he wanted. It then appeared that the mechanic's son had just obtained a semi-skilled job at nearly twice his father's wages. Wages are an expression of social function, and the relative wages of father and son failed to express their respective positions within the community. The old man got very drunk for several days. This is an extreme, and perhaps a trivial, instance of the important fact that the expenditure of income is a highly socialized phenomenon. The wage differential is one of the numerous mechanisms by which sentiments, accompanying the differentiation of social activities, find their expression.

Any executive, faced with the necessity of introducing a change in rates of payments, whether up or down, knows better than to alter the relative financial positions of his various labor groups. For nothing produces more unrest than to threaten the balance of a social structure. To do so is to threaten the most intimate security of every member within it. Security is to a great extent socially evaluated. It is important, above all, to be securely placed within a stable and adequate group. Thus, in a well organized army, bravery is the rule rather than the exception. The battalion in its social aspect gives a form of security to the soldier, who is none the less exposed to the bullets of the enemy. The first need is to share the fortunes of an adequate group, rather than to stand alone.

2. Acute labor unrest is often provoked by an unwise dismissal. And the threat to the integrity of a group, whose members are liable to arbitrary dismissal, is too well known to need comment.

3. Another expression of unrest is a high labor turnover. The simple ex-

planation, based on the assumption that the employee behaves as an "economic man," is that he has left his employment to obtain a better one. Labor is selling itself in the highest market. This explanation is plausible, but it is not true. To give just one illustration:

A few years ago a cotton mill in Philadelphia was faced with a labor turnover of roughly 400% per annum in one of its shops. The employees, who were spinners, were paid good wages, conditions were apparently adequate, and the employees liked and trusted their manager. Nevertheless, on the average, each employee left the firm after about three months' service. The employees typically drifted about the neighborhood, obtaining similar employment, and came back to the original shop for another spell.

It is a commonplace amongst personnel managers that as often as not an employee leaves a firm, not because on a rational calculation it pays him to do so, but in spite of his knowledge that it does not. S. Howard Patterson[1] states that "the rate of labor turnover is much higher for unskilled workers than for skilled workers." He says later, "social unrest, as expressed in the passive form of labor turnover, is as important as that expressed in the active form of strikes and industrial conflict." Patterson might have added that unskilled workers do not quit with any idea of obtaining a skilled job, for which they are not qualified. Such behavior in the majority of cases represents the expression of an emotional unrest, based on a poverty in social work relationship.

4. A fourth manifestation of labor unrest is to be found in the phenomenon of restricted output. There are two levels for the consideration of human actions. The first, the explicit level, is logical. Output is restricted for this and that logical reason: the possibility of working out of a job; the likelihood of rate cuts; the dangers of physiological exhaustion; and so on. As always, such rationalizations have some basis in observed fact. Not one of the unpleasant possibilities is unknown to industry. But where it is found that a given procedure is as likely to produce the very dangers it is supposed to prevent, and in spite of that, is tenaciously maintained, it is a fair conclusion that below the logical level is to be found an emotional nonlogical factor.

It is the fashion to suppose that restriction of output is the invention of trades unions, or their equivalent. In an interesting investigation Stanley B. Mathewson[2] studied restriction of output amongst unorganized workers in "over 105 establishments, in 47 localities, representing 25 classified industries, and 14 miscellaneous ones." His general conclusions are that restriction of some sort is an important factor amongst unorganized labor; and he implies that it is not closely related to the logico-economic arguments which provide its rationalization. It is more nearly connected with the maintenance of solidarity within the groups of employees, having impoverished interpersonal relations with their formal leaders, the management. We shall consider this in greater detail later.

5. Yet another form of labor unrest relates itself to the physical conditions

[1] *Social Aspects of Industry.* New York: McGraw-Hill Book Company, Inc., 1935. Second edition, pp. 294, 295.

[2] *Restriction of Output Among Unorganized Workers.* New York: The Viking Press, 1931. This book, in a small space, gives an excellent account of an important investigation. It should be highly interesting to the executive.

within a plant. Such matters as safety, efficient illumination, cleanliness, etc., are obviously worthy of serious consideration. And here, as always, we find a logical basis for the employee's attitude. But any executive of experience will ask himself whether this logic is not cloaking something more. Not uncommonly the clerical staff is provided with cotton towels, whilst the shop is given paper towels. The groups use separate washrooms. Those for the clerical staff are sometimes kept locked. Such minor, and apparently trivial, details emphasize a social distinction more acceptable to the clerk than to the shop employee. And the result is not infrequently an inordinate preoccupation on the part of the employees with respect to these matters; they are really addressing themselves not to the physical circumstances but to their social implications.

Again, the preoccupations of the clerical force with regard to the size, style, and position of their desks are notoriously far greater than the concern of the mechanic with his bench, although it is the latter who has to perform the more critical physical manipulations. A bench carries with it little social significance. But place one desk out of line with the others and its occupant is proclaimed the senior clerk. Reverse its position so as to face the others and the head clerk becomes a supervisor. Give him a larger desk, a telephone, and, if possible, a small red carpet, and the supervisor rises to the status of an executive.

It is impossible to understand the prevalent preoccupation with physical conditions until it is clearly realized that the mechanical details of life all serve to emphasize the individual's position within his society.

6. The last form of unrest which we shall consider is the resistance of the employee to change. It may seem illogical to refer to such extreme conservatism as unrest; but again it can be traced directly to insecurity.

A medium-sized firm manufacturing a quality product was faced early in the depression with a shrinkage in demand. The firm was not losing to its immediate competitors but to enterprises marketing a lower grade article. The commodity was highly styled and, other things being equal, there was a real place for quality manufacture. As matters stood, one of the shops, in which the employees were skilled girls, was facing a more or less complete shutdown. The responsible executive conceived the idea of slightly altering the manufacturing process for his product in such a manner as to decrease the labor costs without changing the quality. By this device he calculated that the demand would be so stimulated as to provide work at the old wages for most, if not all, of his employees.

He proceeded as follows. On a given morning he went to the shop and spoke to the employees, explaining the decline in demand and pointing out the consequences to them. This, naturally, was no news. He then outlined his solution, which involved a slight change in the actual manufacturing procedures. Finally, having previously shown one employee how to perform the new operations, she gave an exhibition for the benefit of the other girls. All this occupied perhaps an hour or so. The shop then retired for lunch. On returning, the executive found the shop in an uproar. The girls were in tears; and in despair he sent the whole lot home for the day. The executive told me some months later that the

girls had never fully accepted the change, and that they had lost their pride in the quality of their work.

I submit that this very typical situation is hardly an illustration of the "economic woman" logically pursuing her best material interests. But nothing is more stupid than to write off non-logical behavior as though it had no place in a well ordered scheme. Emotions are not to be understood as disconnected exhibitions of low grade behavior. Emotions have their own purpose, and their organization; the problem is to understand what that purpose may be.

In a report of a study of social behaviors and sentiments within industrial groups,[3] the authors refer to a situation broadly analogous to that just described. They state that "The social sentiments and customs of work of the employees were unable to accommodate themselves to the rapid technical innovations introduced. The result was to incite a blind resistance to all innovation and to provoke the formation of a social organization at a lower level in opposition to the technical [logico-economic] organization. . . . The technical organization represents the workers as primarily motivated by economic interest and as acting in a more or less logical way. . . . It tends to view them [the workers] as individuals and their work as dissociated from any social function. In consequence it fails to treat as relevant those very things—the workers' collective customs and beliefs—which give meaning and significance to their work and which make effective collaboration possible."

Stubborn and inarticulate resistance to change from above is the employee's defense against the impact of forces which, being outside the range of his interpersonal relations, blindly threaten his social contacts. It is again a case of fear, born of impoverished human relationship. The poverty lies in the absence of links binding management to its workers.

This very incomplete review of causes of labor unrest should be sufficient to remind us that behind that 19th century abstraction, "the economic man," stands a real social man, dependent for his satisfactions on relationships within a sufficient group. Even this is an oversimplification; for not only do we need secure interpersonal relations within our immediate group, but in some sense we identify ourselves with our circle, and require for it, and through it for ourselves, participation in a wider sphere. Few people emotionally entertain a real desire to coöperate in any society larger than their own nation, although logically they may think such a thing desirable.

The Two Functions of Social Organization

Now the basis of any society is interhuman routine; that is, daily actions involving two or more persons performed in an habitual and accustomed manner. Interhuman routines, whether in a firm or elsewhere, are the pathways by which individuals achieve a true relationship; and it is these pathways around which social sentiment is built up. Social solidarity can only find expression as routine actions between persons, never as mere formal logic.

So a successful social routine achieves two functions. The first is

[3] *Management and the Worker, Technical vs. Social Organization in an Industrial Plant*, by F. J. Roethlisberger and W. J. Dickson. Harvard Business School, Bureau of Business Research, October, 1934.

its logical, or broadly its economic, function. The second is to hold the group together. If the second function be not secured, the group will fall to pieces and fail in its economic purpose. Thus a disintegrate society will be cursed with economic disease.

An organization, such as a firm or a trades union, is a highly developed and closely coördinated system of interhuman activities. It is logically defined by an economic purpose. And to achieve that purpose it requires great and continuing social cohesion. Thus the daily activities of its members must, at one and the same time, be directed towards the economic end and also provide those interhuman pathways which alone can hold the organization together.

It would be interesting to compare two organizations with similar objectives, one of which secures social cohesion through its routines whilst the other does not. Many such parallels could be drawn. For instance, compare the histories of trades unionism in America and in England. In both countries unions have the same logical object—to better the material lot of the workman. The same material necessities exist on both sides of the Atlantic; and neither country can review the economic situation of its industrial employees with an entirely quiet mind. And yet, for better or worse, trades unions have flourished in England; whilst here, in spite of exceptions, on the whole they have failed to capture the loyalty of those for whose benefit they were designed. The usual explanations for this difference are well known, and, for the most part, miss the point. The root of the matter lies in the contrasting social situations of the two countries.

England, as is well known, is still dominated by a relatively rigid system of class differentiations. In practice it is exceedingly difficult to rise in one generation from one class to another; financial success will not open the doors of the class above. In consequence, an able employee who accepts promotion within his industry is in danger of cutting himself off from the society of his old associates without acquiring the right to enter any other group. The greater the promotion the worse the situation. By accepting promotion, an English workman risks social suicide; and he knows it. Consequently, promotion does not often come his way, and when offered it is not infrequently refused. This refusal is by no means the sign of a poor spirit; it is the action of a worker who has to choose between the logical motives of the "economic man" and the needs of a social human being. The latter generally wins.

But the able workman urgently desires, both for himself and for his group, a significant function in a larger sphere. He is debarred from achieving this through the medium of his economic activities, but close to his hand is a parallel organization, his trades union. This is essentially a working class enterprise, and promotion within it does not separate him from his friends. Consequently, the workman becomes a trades union official, and here he enters importantly into the life of his country. He may end as a member of Parliament, or even as a cabinet minister. In this manner does the working class assist in the direction of its country's policies. Of course most union members hope for no career for themselves; but even as simple members they are identifying themselves with an institution which links them

effectively with an important range of activities.

Thus, whatever may be the economic success of unions in England, and this must not be underrated, they do undoubtedly achieve the second or social function of all successful institutions. They bind their members together and provide them with the opportunity of an effective participation in the community as a whole.

It is an unfortunate situation when ability can only find its expression by deserting the field in which it has shown its worth; but this is the reason why trades unions are inevitable in England, and also why they have entered the political field.

In America it is clear that trades unions can perform none of these social functions for the industrial employee. He has every opportunity to rise in his own field. It is within the economic system that an able man can increase the range of his own activities, and can gain rather than lose in social contact.

In both countries the organization has the same logical purpose; but only in one does it perform the very vital function of maintaining its solidarity by offering its members richer interpersonal relations than they could otherwise obtain.

Technological Change and Cohesion of the Social Group

Any organization implies a leader, or, to be more accurate, many leaders. A firm, for instance, is composed of a number of groups, distinguished by their several functions. Small groups collectively form larger groups, and groups overlap. The actual functional grouping of a moderate or a large-sized firm is one of great complexity; a complexity which is not adequately disclosed by a simple enumeration of its departments. The executives and the supervisors are the appointed leaders of the formally recognized groups; they administer the technical organization. That is to say, they have been trained in the economic purpose of their organization; and this purpose dictates its formal arrangement. This arrangement provides the possibility of a technological process; and it is subject to modification, again based on skilled logical thinking.

Change is a marked feature of modern industry, not only in response to technological improvement, but even more as a result of pressure from the sales department. Quite apart from any question of improvement, it is somewhat exceptional to find the same or an analogous group of employees making quite the same commodity year after year in identically the same organization.

But what of the social situation within the firm? This word "social" has been so habitually misused that we shall do well to remind ourselves once more of exactly what it is we are talking about. We are considering human relations as they take place during business hours and in the process of economic occupation. Clubs and recreational activities have their place in a large organization, and their importance is very real. But we are not primarily concerned with them here. It is a poor society in which interhuman activities on the working plane fail to satisfy the major social needs of those involved, for industry is carried on by means of a vast network of human relations. It is precisely these that we refer to when we speak of the social situation within the firm.

Besides the technical organization, absorbed in its logical procedures,

every firm contains a social group. A social group is composed of individuals who are in fact bound together by ties of sentiment based on the mutual performance of similar or complementary acts. Thus, the stores department is technically a separate group from the manufacturing department, but a given employee in the first may well be a *de facto* member of a social group in the second, in virtue of the daily collaboration of one department with the other.

A long and elaborate series of investigations performed by the Hawthorne Branch of the Western Electric Company, Chicago, clearly shows the complexity of the social groupings within a modern factory. These groups do not accurately follow the contours of the technical organization; and, for the most part, they escape explicit attention. Nevertheless, it is this network of social groups which provides the cohesion of the firm as a whole; it is around these groups that sentiments and loyalties cluster.[4]

A social group is sometimes led by an appointed supervisor, but more typically its leadership comes from within its ranks. Being unacknowledged, and even unknown, it is too often no part of management's concern to secure the continued existence of a social group. And, in fact quite unwittingly, the economic procedures of management are continually threatening the social sentiments of its employees by changing the interhuman acts on which they are based. A change of occupation can be effected overnight, with its consequent revolution in human relationships; but with the social sentiments it is far otherwise. Sentiments cannot be broken at frequent intervals without producing unwanted reactions. The natural reaction of any group under such conditions is one of chronic alarm. Employees, in firms where rate cutting is practically unknown, will rationalize their alarm in this very way. It may be true that the firm does not practice any such policy, but it does threaten the social life of its employees; and they, unable to express their real concern, rationalize their distrust of management by a series of intemperate accusations, on groundless apprehensions.

As the Western Electric studies show, under the threat of social extinction, a group will elaborate a whole system of routines, which, by still further isolating the group from the interests and sentiments of management, seems to give the group a security from executive interference. One such form of isolation is to contrive an unvarying output as between one member and another, and as between one week and the next. This can only be arranged by holding output well below the comfortable activity of most of the employees. Until it is disrupted, such a group does undoubtedly achieve an integration between its members, partly on the basis of these isolating routines. But the result is not satisfactory either to the group's own social sentiment or to its economic performance, for the internal integration is obtained through a total loss of contact with the larger organization. This is integration at a low level.

Logical Motives Are No Substitute for Social Cohesion

How does management typically meet this situation? Not long ago, a

[4] One or two of the investigations are described in the paper by F. J. Roethlisberger and W. J. Dickson, referred to in footnote 3. The loyalties and organization of such social groups are illustrated and discussed.

visitor to this country told me that he had spent over a year studying wage payment systems in America and that he had already discovered about 80 radically different systems. Each of these systems was presumably designed by someone for the purpose of appealing to the logical economic demands of the employee. In other words, these payment systems were designed to persuade the worker to play his part in the economic organization. Other devices amount to encouraging the employees to qualify for some of the profits earned by the enterprise; in yet other systems this is a compulsory feature of labor's economic recompense. We need not review all the possible financial inducements which have been tried at one time or another. But, without denying their importance in the total situation, it should be remarked that not one of these devices does anything to secure a maximum of social solidarity for its organization.

Another approach to the problem is given by the efficiency engineer. He attempts to secure a larger participation by each individual by arranging that every process shall be accomplished with a minimum outlay of human and mechanical energy. This, again, is a sensible and a straightforward attitude, and capable of achieving important results in favorable circumstances. But efficiency engineers are not regarded by labor as unmixed blessings, for the probable outcome of their investigations is yet more change, with its consequent social disruption.

A desire for economic efficiency on the part of management very correctly leads to a preoccupation with figures of output. In what shape does this preoccupation actually reach the man at the bench? Go into any shop and obtain the confidence of the employees. You will find that they have an absolutely uncanny knowledge of their own output and of the outputs of their associates, often for weeks past. Moreover, this knowledge is no accident; it has become essential to the maintenance of their working routines. The more concern management shows with individual output, and above all with its variation, the more elaborate are the precautions of labor to isolate themselves from this threat of interference. This attitude takes a typical form in the evolution of social controls for the elimination of variability. Such evolution has already been referred to as leading directly to restriction of activity.

Very broadly, it is a sound generalization that attempts on the part of management to increase individual participation, by emphasizing the economic motive, tend to defeat their own ends. The reason is that they incidentally disrupt the group cohesions, which are of the essence of the firm's functional stability. Employees become fearful of any activity on the part of management because, whatever its logical purpose may be, its secondary effect is so frequently damaging to their social integrity.

Obviously there can be no question as to the necessity for skilled direction of the economic function; the problem is rather how to harness the social sentiments of the employee towards this very end. And the first step in this direction is for management to encourage group solidarity and to be active in guarding it from disruption.

Group solidarity is already encouraged by many commercial enterprises. For instance, social activities are promoted and services of one sort or another are performed by the

organization for the benefit of its members. Such activities do undoubtedly meet a real demand and thus encourage interpersonal relationships, together with their appropriate social sentiments. This is all to the good; but all these activities put together do not penetrate to the core of the problem. The vital necessity is to promote, and then to maintain, interpersonal relationships at the working, rather than at the recreational, level. It is the working groups which must coöperate in the activity of the firm as a whole; and this they cannot do if their sentiments and actions are directed towards a defense against the unwitting attacks of technical management.

Trades unions and employee representation schemes of one sort or another can be instruments for assisting collaboration between the various ranks in industry. In many instances these devices perform a really fine service in promoting coöperative action. It is a commonplace, however, that by and large they have proved double-edged tools. Any arrangement by which one or more representatives of management face a few workers, selected by their fellows, only too easily becomes an organization of strife. A firm contains a functionally interrelated hierarchy all the way from the lowest paid laborer up to the salaried president; for management and ownership are typically divorced. But the structure of a joint council of employees and management very readily distorts the picture into two arbitrarily divided armed camps.

However, the undoubted achievements of devices for bringing together the two extremes of the hierarchy should lead us to consider the conditions for success, rather than elaborate their equally real possibilities for failure. Surely the chief requisite is that the various ranks should meet together with the attitudes and routines of collaboration, rather than in a mood of mutual suspicion. And this leads straight back to the degree of collaboration already achieved in the daily work of the industrial groups involved.

Neither joint councils nor anything else of the sort will provide the primary conditions for collaboration. These can only come from one quarter: the interpersonal acts of working groups secure within themselves and also in their intergroup relations. This is the only basic condition for collaboration; and in the absence of this, joint councils and unions too often not only perform no collaborative function, but actually emphasize the social disorder.

But equally, with sufficiently adequate social conditions already established, almost any sensible means for bringing various ranks together in common council will evolve into a valuable medium for further collaboration. And, in the degree to which this does occur, it is found that the basis of discussion is no longer the adjustment of opposing interests on the part of labor and management, but rather the coördination of the economic and the social aspects of the organization's activity—a problem of mutual interest to all ranks of industrialists.

It is a disaster of the first magnitude that industrialists and their employees have devoted their talents to evolving countless devices for the better coöperation of labor without ever emphasizing the one essential condition for success: a secure and adequate relationship within the working group for each and every individual involved.

The Possibility of Change without Social Disruption

One small group of skilled assemblers, young women, were studied by the Western Electric Company for about five years, and this study leads to some preliminary insights as to the conditions for social stability, and the possibilities of introducing change without social disruption.[5] The detailed organization of the group was frankly experimental, and not adapted for typical industrial situations. Nevertheless, the more general findings are genuinely representative of human behavior.

The group had not worked together before, except as individuals scattered amongst about a hundred others in a large shop. The output of each girl had been closely watched, and irregularity (especially downwards, of course) had been a subject of great preoccupation to their supervisors, and had been a bugbear to the girls themselves. So soon as this small group were brought together, they were told that the investigation was directed towards employee satisfactions, and not primarily towards output, and that above all they were to work at a comfortable rate and not make a race of it. This group worked together for the next five years and a number of things occurred. Payment was on a basis of group output, and the girls developed an eager interest in their performance, which improved by over 30%. Concurrently the group developed a very definite social organization with one of themselves as its informal leader. Social sentiments evolved which expressed both the relations of the girls to one another and also the relations of the group to the hierarchy of executives above them. The interpersonal organization of the group was largely directed towards one end—output. But social security was taken for granted, and many of the customs and routines elaborated had as their object the raising of output, and generally the furtherance of their economic participation.

Here was a situation in which economic routines were providing an expression of social solidarity for employees who were thus obtaining satisfaction in the pursuit of their economic requirements. Many changes of one sort or another were introduced; several systems of rest pauses were tried, abandoned, and reinstated. Hours of work were altered repeatedly; the number of working days was also varied on several occasions, and so forth. The employees had strong opinions as to the relative merits of the various conditions; but these had been introduced after discussions between the girls and their supervisors. These changes were not so many shots in the dark; they appeared to the girls as developments arising naturally from the collaboration between themselves and their seniors. These girls were identifying themselves with a social group which included a hierarchy of supervisors right up to the superintendent of a branch. In consequence, the changes described had little disruptive effort, and they raised no sentiments of alarm or resistance.

However, two changes were introduced to which the previous statement does not quite apply. After about two years, the least popular member of the group left the firm and was replaced by an exceedingly popular friend of one of those remaining.

[5] For a short account of this group, see *Statistical Studies in Industrial Research. Second Progress Report*, by T. N. Whitehead. Privately circulated. Harvard Business School, June, 1934.

This newcomer rapidly made friends with all the others, and she had a collaborative disposition. But naturally she was not versed in the prevailing customs and sentiments. Consequently, for some months collaboration was reduced as between any two members of the group. The effect on the group of a change of one member was a partial and temporary disruption, and a corresponding rise of minor dissatisfactions. The interest of this situation lies in the fact that the new employee was better liked than the girl she had displaced.

Group collaboration recovered from this change, but it then underwent a second experience. The girls had all been sitting in a given order along a work bench for nearly three years; and then this order was altered. For anyone unaccustomed to work which, year in and year out, imposes a given position, without even a chance of walking over to a colleague's desk, the importance of such a change may not be apparent. Each employee had two neighbors with whom she could carry on quiet conversations, although remarks could be addressed to the group as a whole in a louder tone of voice. The effect of an alteration in seating was to provide each employee with new neighbors, and to deprive her of her old ones.

Such a rearrangement represents a midposition between, on the one hand, holding a group together, and, on the other hand, complete physical disruption. The effect on customs and sentiments was also midway between these two extremes.

From this, and from other evidence, it is easy to see that the most disruptive changes that can occur within a firm are those which upset the detailed relationships among the individuals involved. Similarly, the quickest way to isolate a group from the larger organization is to interrupt the detailed activities binding that group to others. There is such a thing as group insecurity as well as personal insecurity. And as soon as this sentiment is aroused, the inevitable response will be defensive, rather than collaborative, action.

Conclusion

The fundamental labor problem for industry amounts to this. Industry represents the most comprehensive form of social organization in the modern world. And the leaders of industry, from the president of the largest corporation to the junior supervisor of a small shop, have a twofold duty to perform: the first is to apply their professional, logical skills to the furtherance of their economic objectives; their second task is to encourage, maintain, and direct interpersonal relations, for these provide the satisfactions which alone can hold the society together, and so retain the possibility of economic efficiency.

This is only an approximate statement of a very difficult problem. And in the nature of the case no general solution can be expected. Success must be the result of trial and error on the shop floor and in the office. And obviously some industries and certain processes lend themselves to easier social control than do others.

Again the Western Electric experiences are to the point. In their conferences for the training of supervisors, the organizers made use of their researches and presented them to the supervisors as case material for discussion. In this manner they induced a remarkable alertness to the

social factors which had not previously been explicitly considered.

Now there are many alternative ways in which the social implications of management can be presented to supervisors; but the interest of the above experience lies in the success which attended the supervisors' conferences. After all, interpersonal relations are never far from the minds of practical industrialists; and, so soon as any direction is given to this thinking, increased effectiveness is almost inevitable. When, by placing the problem squarely on the table, it becomes possible for a first line supervisor to share with the management some insight as to the needs, fears, and consequent behaviors of his group, then some progress in a real collaboration is assured up and down the whole line. And, just as integration can be almost indefinitely depressed by meeting every sign of employee unrest with some form of economic motivation, so can this same motivation, applied to a group which is assured of its social integrity, become a further stimulus to economic effectiveness and to human satisfaction.

The experimental group already described illustrates the point. The girls were, in effect, assured of management's concern in their group activities and interests. This assurance did not take the form of pleasant speeches so much as a practical demonstration that executives were, in fact, concerning themselves with the maintenance of human collaboration. Consequently, the girls collaborated; and the executives were able to introduce an amount of change which would have broken the morale of a less integrated group. These changes were so introduced as not to affect daily interpersonal actions. On two occasions this was not so and some disorganization occurred. But even so, the practical interest of those above in the social life of the group prevented the rise of anti-economic defensive attitudes. Far more changes can be introduced by such a management without producing major unrest, just because the employees are implicitly recognizing the care with which their social needs are being preserved.

So the true route to a collaboration between management and labor lies in an explicit recognition of mankind's social needs. For no major enterprise can be successfully prosecuted in which the leaders do not simultaneously guide both the social and the economic activities of their organization. In the last resort these two are one and the same, and the stressing of one aspect at the expense of the other can produce nothing but social and economic disorder.

SOME FUNDAMENTAL ASPECTS OF RADIO BROADCASTING ECONOMICS

BY HERMAN S. HETTINGER

BECAUSE of the comparatively recent development of many of the fundamental aspects of its economic structure and operation, there exists little general appreciation of the problems which broadcasting presents as a business.

It is the purpose of this paper to trace briefly some of the fundamental aspects of radio broadcasting economics. The material presented does not claim completeness. Rather it is an attempt to trace broad, general outlines and to stimulate an appreciation of the manifold problems which face this new and still rapidly changing economic and social organism.

Bases of Broadcasting

The problems faced by broadcasting systems throughout the world are fundamentally similar. They rise out of the physical and social characteristics of the medium.

Two physical characteristics condition all broadcasting. The frequencies over which stations can operate satisfactorily are limited by nature. Moreover, once set in motion, radio waves can be controlled only slightly as to the direction and distance which they travel. The former of these characteristics has caused the apportionment of radio frequencies to become a matter of national regulation and international convention. The latter has brought broadcasting within the province of interstate commerce.

The social characteristics of broadcasting arise out of its physical nature. The wide areas over which signals can be received and the immediacy and drama inherent in the contact established make radio the greatest medium of mass communication to have been developed since the printing press.

The fundamental utility of broadcasting is its ability to provide entertainment and information of interest to large bodies of people. It is an entertainment medium, a means of education, a disseminator of news, a public forum—and where freedom of speech is not zealously safeguarded, a powerful agency of propaganda. Under the system in vogue in this country, it has followed the press in becoming an advertising medium, assisting in the distribution of goods and services while fulfilling its other more fundamental functions.

The Fundamentals of Broadcasting in the United States

Three characteristics are fundamental to radio broadcasting in the United States. It is privately owned and competitively operated. It is financed mainly by the sale of time to advertisers. Its operation is regulated by the Federal Government.

Private ownership of radio stations allows the widest possible variety of organizations to enter the broadcasting field. The sole requirements are that the facilities be available and that the applicant be deemed best able to render general public service by the Federal Communications Commission.

Competitive operation ensures unequalled vitality in the technical and general program development of American broadcasting. Competition for advertising between stations and networks, and the attempts of stations to justify their being granted increased power or favored frequencies by the Federal Communications Commission, causes them to bend every effort to improve their technical service and establish program popularity. If these efforts have resulted in an essentially "popular" broadcasting system, it must be remembered that American radio is inherently democratic. Failure to pattern its service primarily for the average listener would be to destroy much of the educational value which it undoubtedly possesses.

Advertising has not only financed American broadcasting, but, as in the case of the press, it has given it a freedom of expression and an independence from governmental domination achieved in no other country. It also has given the business community a new and highly efficient sales medium, which, if private competitive enterprise is to be desired, is of constructive social value.

Regulation by the Federal Government is necessary to ensure the effective use of the limited broadcasting facilities available. The broad, general principle of "public interest, convenience, and necessity" has been laid down as the test of satisfactory service. The social and economic implications of that principle have never been developed with sufficient clarity to make possible a consistent regulatory policy based on sound logic. Appreciation of the economic aspects of broadcasting has been lacking in particular. The principal value of government regulation, therefore, has been from the technical angle, where material progress has been achieved.

Structure of Broadcasting in the United States

The fundamental structure of American broadcasting comprises 621 stations. These are divided roughly into three groups: local stations, with a maximum nighttime power of 100 watts, designed to render local service; regional stations, with a maximum nighttime power of 1,000 watts, providing service over somewhat larger territories, and high-powered regional and clear channel stations, ranging from 5,000 watts upwards, which furnish the bulk of service in rural areas.[1] More than 90% of the stations fall into the local and regional classes with a slight preponderance of the latter. Only about 380 stations are in simultaneous nighttime operation.

Provision has been made in the radio law for the apportionment of broadcasting facilities in such a manner as to provide equal service to all sections of the country, and an elaborate quota system, based upon the distribution of total population, has been set up for this purpose.[2] The application of

[1] WLW, Cincinnati, is the only station of this group to exceed 50,000 watts in power. It is 500,000 watts. In actual practice a number of lesser powered stations have been assigned to clear channel frequencies. For the most part these operate only in daytime or when the dominant station is silent. This practice has been deemed by some to have impaired the value of clear channel stations and a survey is now being conducted to determine the actual conditions in this regard.

[2] The country has been divided into five zones and the facilities apportioned among them. The First Zone comprises New England, the Middle Atlantic States other than Pennsylvania, Delaware, Maryland, and the District of Columbia. The Second Zone embraces Pennsylvania, Ohio, Michigan, Kentucky, Virginia, and West Virginia. The Third Zone comprises the remaining Southern States, and the Fourth Zone the remaining North Central States. The Fifth Zone takes in the Mountain and Pacific Areas.

this principle has been but partially successful. Facilities have been apportioned only roughly according to zones, while the fact that important metropolitan centers are located on or near state boundaries has served further to modify the significance of present allocations. Finally, radio receiving set ownership is not distributed in accordance with total population. Notably in the South Atlantic and South Central states,[3] radio ownership is considerably less *per capita* than in other sections, with the result that these states possess more facilities per receiving set than do other portions of the country. This condition also limits station audience and affects the economic status of broadcasting in the area in question.[4]

Several modifications of possible economic import have been made recently in the fundamental broadcasting structure. The Federal Communications Commission has allowed 100-watt stations to be established irrespective of quota provisions, provided that they do not interfere with existing service. Since these stations form the least stable class economically, this move should be of little benefit either from the social or economic viewpoint.

Separate daytime and nighttime quotas have been established by the Commission with a consequent increase of day power for a number of stations. With the trend toward greater use of daytime hours for broadcast advertising, this move may result in an improved economic position for the stations affected.

The Commission also has recommended that the present quota system be dispensed with, though it is still too early for this recommendation to have had any practical value.

The Economic Structure of American Broadcasting

The economic structure of American broadcasting consists of the stations and the various service organizations and middlemen necessary to the rendition of adequate program and advertising service. More than 90% of the stations of the country sell time to advertisers. This includes a number of stations maintained by religious and educational institutions which have had to enter the commercial field in order to meet the costs of operation.

Groups of stations have been fashioned into networks for the simultaneous performance of a given program by the use of telephone lines. The two principal nation-wide networks are the National Broadcasting Company and the Columbia Broadcasting System. These networks cover the entire country, though their basic networks, comprising stations which the advertiser is more or less required to take,[5] lie entirely within the New England, Middle Atlantic, and North Central areas.

A network is essentially a service organization. It owns few stations. The two previously mentioned companies either own or have a financial interest in but 20 of the approximately 180 stations affiliated with them. Affiliation with a network takes place on the basis of the station receiving sustaining service, *i.e.*, noncommercial programs,

[3] In spite of almost equal total populations, the First Zone contains 30% of all radio families, the Second Zone 24%, the Third Zone 10%, the Fourth Zone 25%, and the Fifth Zone 11%.

Average station rates are from one-third to one-half as great in the South as they are in the First Zone.

[5] Because of conditions to be described later, the problem is more one of the network delivering the desired stations than of forcing the advertiser to take a station.

in return for giving the network the right to certain specified hours free of charge or on payment of a specified sum, and of the receipt by the station of specified sums for any additional commercial hours placed over the station, or of a certain guaranteed sum over a period of time.

During the past several years a number of attempts have been made to establish a third national network. Most of them failed, principally because it was impossible to secure adequate outlets in essential key centers of trade. Until the fetish of power is removed from the minds of American advertisers, no third national network can come into being except at the expense of the two existing companies.

A third network has recently been established in the Mutual Broadcasting System, comprising stations WOR, Newark, WLW, Cincinnati, WGN, Chicago, and CKLW, Detroit-Windsor, all of which were affiliated originally with the other two national networks. WLW still retains its affiliation with the National Broadcasting Company, but on a semi-independent basis whereby it is made available to advertisers only upon payment of a special charge.

It is quite probable that the Mutual System will develop ultimately into a network devoted exclusively to reaching the great metropolitan retailing centers of the country and affording highly economical coverage for the advertiser interested primarily in these communities. A unique feature of the Mutual Broadcasting System is the interchange of sustaining service and the mutual sharing of network profits.

There also are regional networks, serving more localized territories. The Yankee Network in New England, the Southwest Network and Texas Quality Group, and the Don Lee Network on the Pacific Coast are examples of this type of development. Besides these formal organizations, rendering sustaining service and connected by permanent wires, there are a number of informal regional networks, ranging from mere time-selling combinations to close counterparts of the more highly organized units.

Rise of Non-network Advertising

During 1929 and 1930 the development of electrical transcriptions—programs recorded especially for broadcasting purposes—and the success of some companies in the use of short announcements placed over large numbers of stations, turned the attention of national and regional distributors to the possibility of advertising over individual stations, not bound together in networks.

This development placed new responsibilities upon the advertiser and the agency. Station selection, time buying, the development and production of programs, and the servicing of widely scattered stations presented considerably more complicated problems than those involved in the use of a single network. At the outset the agencies were not equipped to cope with these problems.

The time broker, historically the counterpart of the space broker in the early newspaper and periodical days, arose to meet the needs of non-network advertising. In addition to promoting the sale of stations' time, the more enterprising time brokers entered the program-building field, and became specialists able to render every service required by those engaging in national non-network advertising.

The tendency to buy time at the lowest price possible and to sell it for

what the market would bear, rebating, the cumulation of commissions—in that transcription companies, the manufacturers of turn-tables used in the broadcasting of electrical transcriptions, and others, also demanded the traditional 15%—and the entrance into the field of inadequately financed and poorly managed organizations, contributed to the downfall of the time broker.

Accordingly, in 1932 the special representative entered the broadcasting field, supported by the advertising agencies and a number of the larger stations. He functioned as did his counterpart in the periodical field and received the customary commission on business originating in his territory. A number of leading time brokers shifted their activities to the field of representation, while the rest passed from the picture.

The rise of the special representative was hastened in part by the fact that agencies were beginning to equip themselves to deal adequately with all phases of this new medium. Leading agencies developed well-equipped radio departments. Smaller enterprising organizations won positions of leadership by concentrating upon the possibilities of broadcast advertising. Many of the general services of the time broker were assumed, quite logically, by the advertising agency, which became an integral part of the structure of both network and non-network broadcast advertising. It should be noted, however, that the number of agencies equipped to service adequately broadcast advertising is still relatively limited.

A satisfactory solution has yet to be reached as far as the development of national non-network advertising is concerned. The expense involved in the creation, production, and servicing of national non-network broadcast advertising programs has been such as to have caused many agencies to be reluctant to push this type of business, so that it has tended to lag. Moreover, the problems of selling broadcasting are only partly analogous to those of periodical advertising, a fact which raises serious difficulties for the special representative in radio. Broadcast advertising depends particularly upon freshness and originality of ideas, and upon programming and showmanship, rather than upon merely mechanical factors, such as layout and space buying. In addition, it is considerably more difficult to visualize a finished program from a bare idea than it is to imagine a final advertisement from a rough layout.

It is, therefore, highly essential that broadcasting be promoted as an advertising medium. Several attempts have been made to solve this problem, but none has been more than partially successful. One, Group Broadcasters, banded together a number of important stations for the joint sale of time and promotion of national non-network advertising. The organization disbanded comparatively shortly after its formation. The World Broadcasting System, a large transcription company, has developed another attack on the problem by entering into an agreement with leading station representatives whereby it will build and audition programs in return for a commission ranging from 5% to 7% of the station card rate for the time used by the advertiser. This commission will come out of what the station usually pays the representative and will not constitute an additional charge to be deducted from the station's gross.[6]

[6] The World Broadcasting System also has developed a service of considerable importance to stations, especially smaller ones, in the form of a transcription

It is difficult to venture what will be the final solution of this problem. It is probable, however, that either the special representative will assume additional promotional functions, or that some form of joint promotional organization finally will be successfully consummated. It also devolves upon the agency to give national non-network advertising possibilities even greater consideration than they have received to date.

The Economic Operation of American Broadcasting

Gross time sales to advertisers by stations and networks totalled $72,887,000 in 1934.[7] This figure is based upon the conventional form of stating advertising volume; namely, the single time rate prior to the deduction of quantity discounts (based here upon the number of periods of broadcasting in the program series) and agency commission. If allowance were made for these factors, it is probable that the gross receipts of broadcasting applicable to operation would be nearer $60,000,000.

With the exception of a decline in network revenue in 1933 and a somewhat greater drop in national and local non-network advertising during the preceding year, broadcast advertising has forged ahead steadily, with 1935 certain to experience the largest volume in the history of the medium.

Each medium possesses its own particular advantages which recommend its use in specific circumstances. The value of radio as an advertising medium rests upon the contact which it affords with six out of ten homes in the United States,[8] and the power of the spoken word combined with the good will engendered by entertainment.

Broadcasting offers the advertiser the ability to place his sales message directly opposite the most interesting material in the day's offerings; namely his own program. This gives him a high degree of control over the circulation achieved by his own advertising. This control is further enhanced by the isolation secured for the program through the development of a regular body of listeners, combined with the fact that they can listen to but one program at a time and that the number of programs which they will hear in any day is definitely limited.[9]

Broadcasting also possesses the advantage of relying upon the oldest form of communication, the human voice. Psychological studies[10] and analyses have shown the spoken word to

library. Stations may use the programs in the library either upon the payment of a specified fee or the donation of a given amount of time. The programs may be sold to local advertisers for sponsorship. The National Broadcasting Company also has entered the transcription library field.

[7] Revenues secured from other than the sale of time are inconsequential, talent usually being contracted for directly by the advertiser. Talent cost usually ranges from one-quarter to one-third of time costs, as contrasted to an average cost of 5% to 10% of space charges for art work in the periodical field. Consequently, if talent were considered, total expenditures by broadcast advertisers in 1934 would approximate between $86,000,000 and $92,000,000. Statistics used herein have been compiled and published by the National Association of Broadcasters, Washington, D. C.

[8] The latest estimated number of radio homes is 21,455,000 (Columbia Broadcasting System). At 3.3 listeners per set, this represents approximately 70,000,000 potential listeners.

[9] Assuming an average daily listening of four hours, a matter on which most studies seem to agree, this would mean that seldom more than twelve programs would be heard by the listener in question during a given day. This is a much smaller number of advertising exposures than would occur, for instance, in perusing a periodical, and the value of each therefore should be enhanced, potentially at least, by its comparative isolation.

[10] Harvard University and Ohio State University have been leaders in this field of research. A functional analysis of the psychology of listening and reading leads to the same general conclusion.

possess the greater memory value than the printed word. Undoubtedly important limitations exist with regard to this generalization, but its general value is unmistakable. The emotional value of the spoken word in persuasion, command, and all the other nuances of speech is the property of broadcast advertising. So, also, is its intimacy, where the announcer, if wise, addresses each listener as if individually.

Finally, there is the good will value and prestige which an outstanding program builds. These factors, woven into the fundamental utility of radio as a means of entertainment and information, have caused its rise as an advertising medium.

Composition of Broadcast Advertising

There is a great tendency on the part of the layman to view broadcast advertising purely from the national network viewpoint. National networks accounted for but 58.5% of total gross time sales of the medium in 1934, while regional networks were responsible for 0.9% of radio volume. National non-network advertising—advertising placed over individual stations by national and regional distributors—represented 18.6% of the total of the medium. Local broadcast advertising, comprising mainly retailers and local manufacturer-distributors, represented 22.0%. National network advertising, has increased steadily in relative importance since 1931, when it represented 51.2% of total broadcast advertising. The increasing proportion arose from a more rapidly growing volume of network advertising, and not to decreases in other portions of the radio structure.

Marked differences exist in the volume and type of broadcast advertising placed over stations of various classes. National business tends to concentrate largely upon the higher powered stations and upon network affiliated stations. It is estimated[11] that 85% of all business placed over stations of more than 1,000 watts in power is national in origin.[12] Even when network advertising is eliminated from consideration and non-network volume alone is considered, approximately 60% of non-network business over stations of this class is represented by national and regional advertisers.

So-called regional stations, ranging from 250 to 1,000 watts in power, present a different situation. Here national advertising, network and non-network combined, represents approximately 70% of total gross time sales. National business accounts for approximately 35% of the non-network volume of this class of station. In the case of stations in the 100-watt group, only about one-eighth of total advertising revenue comes from national business. These stations are not affiliated with networks to any appreciable degree, so that this aspect requires no consideration.

There is also a concentration of business on network affiliated stations as against those not associated with networks. It is estimated that slightly more than 75% of all broadcast advertising volume is placed on stations affiliated with networks. These comprise approximately one-third of the transmitters in the country. Network-affiliated stations account for approximately two-thirds of national

[11] All information in this section either is based on the regular reports of advertising volume compiled and published by the National Association of Broadcasters, or is the result of special studies based upon reports of advertising collected in this manner.

[12] These are all either 5,000 watts or better in power and constitute the clear channel and high-powered regional group of stations.

non-network business and 55% of total non-network advertising. Thus approximately one-third of the station structure of the country constitutes the backbone of the economic structure of the broadcasting industry.

Within the various classes of stations previously mentioned, advertising volume varies tremendously. The principal variation is on the basis of management, though there are some slight differences to be found on the basis of the size of community. Clear channel and regional stations in towns of more than 500,000 population tend to show considerably higher gross time sales than do those in communities under that size, though there is no important difference farther down the scale until communities of less than 100,000 are reached, when gross revenues again drop materially. There is practically no difference in the average gross revenues of 100-watt stations in any size of community. Program building and sales ability are the principal determinants of individual station advertising volume to a remarkable degree.

When the non-network field is examined with regard to the type of rendition employed by advertisers, additional interesting aspects of broadcasting economics are revealed. In the national field, 37.6% of non-network advertising in 1934 was represented by electrical transcriptions, 42.8% by live talent programs, 0.4% by records, and 19.2% by announcements. In the local field the proportions were as follows: electrical transcriptions, 8.1%, live talent programs 52.3%, records, 2.5%, and announcements, 37.1%.

There are decided differences by classes of stations in this respect. Electrical transcription volume is concentrated upon stations over 1,000 watts in power, where it represents 25.6% of non-network business. The influence of the national advertiser is the reason for this situation. Transcriptions thus far have made little progress on the local stations.

Live talent programs are concentrated upon the clear channel and regional stations. Financial resources, program and studio facilities, and type of advertisers appealed to, combine to produce this result.

Announcements constitute a fairly large proportion of the business of all classes of stations, increasing in relative volume as the power of the station declines. In the case of 100-watt stations they constitute approximately 46% of all advertising volume. Records are important only to this class of transmitter, and represent nearly 12% of all advertising volume. Since most programs utilizing records on these stations are participations, wherein announcements are inserted between numbers, there is little difference in the two classes of business. Thus nearly 60% of 100-watt station advertising tends to be in the nature of announcements.

Retail store advertising, when considered separately, shows marked differences in importance between classes of stations. In the case of stations over 1,000 watts in power it represents approximately 6% of total gross time sales. It constitutes about 16% of time sales over stations in the 250- to 1,000-watt group, and over 43% of those of 100-watt stations. The small retail establishment is therefore the economic backbone of the 100-watt group at the present time.

The bulk of retail advertising at present is broadcast over regional stations. It is estimated that in 1934

approximately $4,000,000 was spent by retailers over stations of this class, $1,750,000 over 100-watt stations, and $1,400,000 over clear channel and high powered regional stations.

Sponsors of Radio Advertising

Sponsorship of radio advertising by various product and service groups varies with the portion of the broadcasting structure under consideration as well as with power of station. Broadcast advertising expenditures of major industrial groups over national and regional networks, as well as for national non-network and local broadcast advertising, during the year of 1934 are found in the table on page 23.

Convenience goods—small articles of low cost, mass consumption, and a high degree of repeat purchase—constitute the preponderance of national network advertising and tend to assume a similar position in the national non-network field. In 1934 they constituted approximately 86% of national network volume and about 70% of national non-network volume.

The greatest rise in network advertising during the past two seasons, however, has been in the more expensive goods, particularly automobiles. A similar trend regarding household equipment and like products seems to be beginning.

The composition of local broadcast advertising reflects more of the retail picture, and is further characterized by a great variety of advertisers. Analysis of the accounts of 150 stations for several months in 1933 and 1934 revealed an average of more than 200 different types of business utilizing radio broadcasting.

Different types of business tend to concentrate upon various classes of stations. Amusements represent a larger proportion of the total business of 100-watt stations than they do of any other class of transmitter. Gasoline and accessories, drugs and cosmetics, confectionery, beverages, and tobacco are particularly important with regard to the higher powered stations. The influence of the national advertiser, and of the local manufacturer-distributor who imitates him, is responsible for this tendency.

Clothing and apparel advertising represents a larger proportion of the business of regional and local stations than of the higher powered units of the medium. Department and general stores tend to seek out the regional stations, and the smaller retailers the local stations. As the size of station decreases the variety of advertisers increases as is indicated by the rise in importance of the miscellaneous group.

The Economic Position of Broadcasting

Broadcasting is a small industry regularly employing probably less than 11,000 persons all told. It is comprised of but slightly more than 600 units, of which one-half are of any real economic importance, and one-third constitute the backbone of the medium. The business of broadcasting is concentrated to a large degree in this third, comprising the higher powered stations and those affiliated with networks.

Viewing this structure from the operating side, greater economic stability could be desired. In 1931, which was the peak year of the medium prior to 1934, total expense of the medium exceeded revenues by $237,000.[13] The monthly gross revenues of more than half of the stations of the country were

[13] Federal Radio Commission report in response to the Couzens-Dill Resolution. 72d Congress, 1st Session, Senate Document #137, p. 13.

$3,000 or less. There seems to have been some improvement in recent months, but by no means sufficient to rectify the situation.

Operating conditions in broadcasting are such as to involve high costs. Depreciation and obsolescence of equipment, which represents a high proportion of the entire investment of the station, takes place on a basis of from three to five years. Maintenance of standards of technical service required by the Federal Communications Commission, and the program competition necessary to improved power or frequencies, cause high charges of operation.

Working capital is difficult to secure, especially in view of the fact that station licenses are issued for a duration of only six months, and that the Commission's refusal to renew a license may destroy the entire investment and earning power of the broadcaster.

Conditions governing the sale of time further complicate the economic situation. Stations are limited in their ability to make up for past losses by an indefinite expansion of business in times of prosperity by the fact that time itself is inexpansible, that daytime hours do not command as high rates as do nighttime hours, the latter being limited, and that the requirements of a balanced program structure seem to demand that from 30% to 40% of the broadcasting hours be reserved for noncommercial programs.

The discontinuing of a commercial program makes it necessary for the station to fill the time previously occupied by it with an offering of its own, since continuous service must be

BROADCAST ADVERTISING BY TYPE OF SPONSORING BUSINESS*
(1934)

Type of Sponsoring Business	*Gross Time Sales*									
	National Networks		*Regional Networks*		*National Non-Network*		*Local*		*Total*	
1a. Amusements					$ 35,742	.3%	$ 514,986	3.2%	$ 550,728	.8%
1-2. Automobiles and accessories										
1. Automobiles	$ 2,785,685	6.2%	$ 5,853	.9%	721,743	5.3%	644,545	4.1%	4,157,826	5.7%
2. Accessories, gas and oils	3,827,158	8.6%	222,266	31.0%	1,287,053	9.5%	901,302	5.6%	6,237,779	8.6%
3. Clothing and apparel	372,776	.8%	15,723	2.2%	301,563	2.2%	1,690,076	10.6%	2,380,138	3.2%
4-5. Drugs and toilet goods:										
4. Drugs and pharmaceuticals	4,804,381	11.1%	23,922	3.2%	3,134,909	23.1%	1,012,440	6.3%	8,975,652	12.3%
5. Toilet goods	9,400,764	24.2%	7,883	1.1%	795,945	5.8%	305,868	1.9%	10,510,460	14.4%
6-8. Food products:										
6. Foodstuffs	8,450,701	20.1%	178,726	25.1%	2,778,730	20.5%	2,404,898	15.1%	13,813,055	19.0%
7. Beverages	3,358,805	7.5%	71,319	10.0%	517,721	3.8%	774,948	4.8%	4,722,793	6.4%
8. Confections	1,081,363	2.4%	9,210	1.3%	335,975	2.4%	46,514	.3%	1,473,062	2.0%
9-10. Household goods:										
9. Household equipment and furnishings	417,168	.9%	20,502	2.8%	535,848	3.9%	1,345,497	8.4%	2,319,015	3.2%
10. Soaps and kitchen supplies	2,210,178	5.1%	796	.1%	515,415	3.7%	94,403	.6%	2,820,791	3.8%
11. Insurance and financial	611,822	1.3%	21,904	3.0%	201,369	1.5%	497,758	3.1%	1,332,853	1.8%
12. Radios	656,090	1.4%			50,382	.4%	138,938	.9%	845,410	1.0%
13. Retail establishments					56,256	.5%	1,295,026	8.1%	1,351,282	1.9%
14. Tobacco products	3,181,988	7.1%	3,835	.5%	125,544	.9%	35,853	.2%	3,347,220	4.6%
15. Miscellaneous	1,488,202	3.3%	135,178	18.8%	2,147,575	16.2%	4,278,149	26.8%	8,049,105	11.3%
Total	$42,647,081	100.0%	$717,117	100.0%	$13,541,770	100.0%	$15,981,201	100.0%	$72,887,169	100.0%

* Broadcast advertising in 1934. NAB Reports, National Association of Broadcasters.

maintained. Thus, the working capital requirements of stations cannot be reduced in times of falling business to the extent possible in many fields, and in some instances they may even tend to mount. It was this fact which prompted the Federal Radio Commission to allow stations to operate less than the stipulated minimum number of hours during the summer of 1932.

Since time is inexpansible, a marked increase in broadcast advertising volume may place time at a premium. Following a decline of 8.6% in station rates between 1931 and 1934, an upward tendency again has manifested itself. Station rates still are too low, in view of the fact that since 1930 the potential audience has increased more than 60% and that improved transmission and reception have placed more of this audience within the range of the average station. The recently announced network policy regarding medicinal advertising undoubtedly found strong moral support in the same trend. Increased business should further improve the quality of broadcast advertising.

Thus there is presented the picture of an industry—new, small, self-contained, its volume highly concentrated on a relatively small proportion of its units, its whole existence precariously perched on the uncertain foundation of a six months' license period, and its operation conditioned by important limitating factors. It is only natural that such an industry should be faced with a multiplicity of problems.

The Economic Problems of Broadcasting

The economic problems of broadcasting divide themselves into several categories: those of structure, those of trade practice, and those relating to governmental regulation.

An important structural problem is that of network-station relations. This problem finds its origin in the joint questions of station compensation and network control of station time. In the past this has been particularly acute with the higher powered stations, where, at times, network compensation for commercial programs has barely met the cost of station operation during the period in question. The rise of national and local non-network business, sold at card rates which are uniformly higher than the amount received from the network for the same time, has further accentuated the problem. Stations will bend every effort to prevent losing a local account for a less profitable network commercial venture. On the other hand, the networks must control large blocks of time if they are to function as national media and to provide the advertiser with a nation-wide audience. This has further complicated the sale of non-network advertising.

Since network programs in most cases are essential to the station, and the station to the network organization, the solution has seldom been that of a divorce of activity. Only a few of the richest and most powerful transmitters have found it worth their while to sever their network affiliation. The network organizations, themselves, have been cognizant of this problem and have made serious efforts to bring about more satisfactory relations and a more practical plan of operation. Increased station compensation has tended to be the method employed. The final solution has by no means been reached, though some progress has been made.

The development of national non-network advertising constitutes another important structural problem,

structural because increased volume of this type of business is an important factor in promoting the stability and profitableness of certain classes of stations. No matter what the ultimate solution of the network-station problem is, the increased economic well-being of many network affiliates probably will tend to center largely in increased non-network business. Even more important is the desirability of developing the national advertising of stations not affiliated with networks. Some form of joint promotion undoubtedly will be required, the implications of this question having been discussed earlier in the paper.

The most important problem with regard to structure is the broadening of the economic base of broadcasting, in the sense of improving the position of the rank and file of the smaller stations, and especially those not affiliated with networks. These stations, comprising more than two-thirds of the total units of the industry, are the social and political backbone of American broadcasting.

A variety of approaches present themselves in this field. One of the most important services which can be rendered in this respect is the education of the advertiser to the true significance of power. Power is important only in relation to frequency and local transmission and reception conditions. The delivery of a signal of sufficient intensity and regularity to be heard satisfactorily is the true measure of the station's ability to reach listeners. It therefore may be, in a specific market, that a small station will present just as satisfactory coverage as will a larger transmitter, and at a considerably lower cost.

The creation of station individuality and the fashioning of the station into a community institution commanding a loyal audience of its own, is a step which commends itself to the independent station. Such a station is not faced with the necessity of being both a national and a local medium. It can develop its activities around the life of its community and can become the community forum and the disseminator of community entertainment and culture. As network volume develops, this opportunity should increase in importance to the independent.

Selling specific markets, rather than mass circulation, is another approach which may be of assistance. Farm stations and foreign language stations constitute examples of this approach. While the appeal of radio always must remain comparatively general, other similar opportunities undoubtedly exist.

Double coverage is another concept worthy of consideration at this point. An advertiser seldom buys only one newspaper in a given community if he desires coverage of any intensity. Yet he seldom utilizes more than one radio station. Advertisers have been too much enamored with the idea that the public will flock from one station to the other in search of programs. This occurs only when outstanding programs are presented or when a program on a given station becomes quite definitely distasteful. These situations do not arise every fifteen minutes. Viewed in this light, the community audience built up by the local station will possess an important sales value.

Better knowledge of the problems of retail selling, and consequently more intelligent and aggressive servicing of retail accounts by smaller stations, would be of marked value in the improvement of the quantity and quality of broadcast advertising. A wider and

more comprehensive dissemination of promotional material for the medium also would be of assistance.

Considering the youth of the broadcasting industry, remarkable progress has been achieved in the field of commercial practice, though numerous problems still remain. Broadcasting largely has followed other advertising media in the development of its commercial practices. The usual agency commission pertains throughout the medium, and the industry is now taking steps toward the establishment of an agency recognition bureau similar to that of other media.

Some progress has been made toward a standardization of practice with regard to items such as contract forms,[14] units of sale, discounts for broadcast series of given duration, and similar matters. Rates show considerable lack of uniformity, especially as to charges at different times of the day, with a seeming tendency toward a greater number of variations for specific time periods rather than toward a reduction therein. There is also a tendency toward the establishment of a single station rate and the discontinuance of the so-called "general-retail" rate system borrowed from the newspaper field.

The amount of merchandizing service which should be provided to advertisers by broadcasting stations and networks constitutes another important trade practice problem. Some stations have developed this service to such an extent that it has practically resulted in furnishing the program sponsor with supplementary advertising without additional charge. Undue extension of this service not only constitutes an important cost item, but introduces a potentially vicious price-cutting situation.

The lack of standardized information regarding station coverage and listener data has constituted an important problem in the sale of advertising. Notwithstanding the fact that radio has developed a fund of information equal to that of any medium, the newness of research in the field has resulted in a variety of approach and method which has seriously impaired the comparability of results with regard to individual studies. Steps are now being taken looking toward the creation of a coöperative bureau, to be maintained by the broadcasters, advertisers, and agencies, which will provide certain basic information regarding the medium and will function for radio in the same general capacity as does the Audit Bureau of Circulation in the periodical field.

Problems of government regulation affecting the economic aspects of broadcasting also require attention. Economic stability and constructive growth can be achieved by broadcasting only if the term of station license is materially lengthened. It is sometimes claimed that the six months' license period is necessary to ensure the operation of stations in the public interest. However, if the Commission were to proceed in its regulation by the exercise of its powers of revocation, as originally intended in the law, rather than by the negative, ambiguous, and generally confusing procedure of refusal to renew licenses, a great deal of the force of this objection would be removed.

If lesser penalties than that of revocation would be required for minor offenses, they could be devised. An

[14] A uniform contract adopted several years ago by the National Association of Broadcasters and the American Association of Advertising Agencies aided materially in minimizing uncertainty in this field.

approach of this type, however, would require a clear-cut definition of what constituted operation in the public interest, convenience, and necessity, and a determination wherein lay the proper scope of broadcasting regulation under this concept of service.

The regulation of broadcast advertising presents a complex and interesting problem. Broadcasting stations, similar to other media, are subject to the Federal Trade Commission in this respect.[15] At the same time, the Federal Communications Commission considers the type of advertising broadcast in determining whether the station is being operated in the public interest.

It must be remembered that the law specifically forbids the Commission to exercise any censorship over programs, and the various members of the Commission have expressed themselves quite clearly as being opposed to censorship. However, an interesting possibility suggests itself in this respect. When the Commission concerns itself with advertising it must necessarily deal with specific programs. If a given program has seemed to be objectionable in its advertising, the course taken by the Commission has been to question whether its broadcasting is in the public interest and to reach a determination in this respect following a public hearing. If it is determined that the program is contrary to the public interest, this can be made the basis for refusal to renew license. It can be readily seen how a procedure of this sort, unless most carefully applied, might conceivably develop into a form of program censorship. Indeed, a threat of such censorship, combined with the six months' license period, could result, quite conceivably, in impairment of freedom of expression over the air.

Clear thinking as to the exact scope of regulation in the public interest, positive action in place of the negative procedure of refusal to renew licenses, and a proper appreciation of the relative scope of activity of the Trade Commission and the Communications Commission, should result in constructive and helpful action in this field.

As a matter of fact, the usefulness of regulation in the improvement of broadcast advertising, or any advertising, is probably limited to the prohibition of fraudulent advertising and of false and misleading statements. In the long run, improvement in radio will come from writing copy for the ear, and from remembering, when so doing, that the announcer is the invited guest conversing in the home with the listener. Progress is being made in this field, and, combined with the recent definite moves of stations and networks to raise advertising and program standards, should materially add to the value and service of broadcasting.[16]

The Future of Broadcasting in the United States

The broadcasting structure of the United States and the service which it renders is still in its infancy. Numerous technical developments are possible. Stations may be connected for the simultaneous broadcasting of programs by radio waves rather than by telephone lines, with possible marked modifications in present network struc-

[15] The industry has coöperated closely with the Trade Commission and has been commended several times for so doing. To date no station has been cited.

[16] Both networks have taken steps to eliminate medicinal advertising and have further adopted rigorous copy and program policies regarding children's programs and similar items. A number of individual stations have taken generally similar steps.

ture and operation.[17] Wired radio, whereby programs are sent into hotels, restaurants, offices, and conceivably homes, over wires and as a regular service, has again raised its head following several years of comparative quiescence. Facsimile broadcasting—whereby printed matter is scanned photo-electrically, broadcast, and recorded in the home by means of an attachment to the radio set—makes possible the broadcasting of illustrations, diagrams, instructions, trade marks, news bulletins, and a variety of material. It also possesses a great variety of uses outside the general listener field. Television also presents the possibility of marked changes in economic structure and operation of broadcasting.

Assuming a continuation of the present structure for a number of years, broadcasting should witness considerable improvement in general economic level. The continued growth of network volume should force, at least to some degree, a broadening of the economic base of the industry, The improvement of the general level of small station management, now becoming apparent, should aid in the same direction. The growing sense of interdependence in the industry also should be of assistance, as should the further perfection of the advertising technique of the medium.

[17] Approximately 30 stations, it is estimated, are now regularly rebroadcasting programs of adjacent larger transmitters, with the permission of the latter.

THE COTTON TEXTILE SITUATION

BY EDMUND P. LEARNED

FOR the last six months certainly, and almost for the last year, the cotton textile industry has received more than its usual share of industrial publicity. A year ago the national textile strike was a central theme for many headlines, but by the early part of 1935 interest had shifted to the menace of Japanese competition. During the late spring and summer, however, the spotlight turned to the AAA and the cotton processing tax. Almost daily, newspapers in textile states have carried editorials on some aspect of the textile situation, and editors, members of Congress, leaders of the industry, and to some extent the public, eagerly awaited the report of the Cabinet Committee that President Roosevelt appointed to study the cotton textile situation. Even the election of a Republican Congressman in a former Democratic district in Rhode Island, according to many commentators, was the result of discontent among textile mill owners and textile workers.

There is no dearth of information about the present situation of the cotton textile industry, and there is no shortage of opinion with respect to the facts. Many of the interpretations, as one should expect, have an emotional basis; and just as drowning men grasp at straws to save themselves, so do mill owners who have seen their investments dissipated, and laborers who have lost their jobs or have had the amount of their employment reduced, seek for some plausible explanation of their difficulty, and for some sure way out of it.

The question to be answered, therefore, is, what is the matter with the cotton textile industry? Is it the cotton processing tax, the Japanese imports, the level of wages and the hours of work, or is it some other cause or set of causes?

The Cotton Processing Tax

That the cotton processing tax has been a burden to many productive units in the cotton textile industry must be admitted by fair observers. The main objections to the tax have been: (1) that it increased costs and thereby increased the working capital requirements of producers, (2) that by increasing costs and prices it restricted demand for cloth, and (3) that it reduced net profits because producers were unable to shift all the increased costs to customers.

During 1933 there were several factors at work to increase the amount of working capital needed by mills. After the United States suspended payments in gold the domestic prices of raw cotton advanced. The prospect of legislation designed to restrict production may have given a speculative lift to prices also. Thus the average monthly price of New York spot cotton advanced from 6.05¢ a pound in February to 6.39¢ in March, 7.02¢ in April, 8.65¢ in May, 9.47¢ in June, and 10.74¢ in July.[1] Then with the imposition of the cotton processing tax the cost of cotton to mills was increased another 4.2¢ a

[1] For further details, see Copeland, Melvin T., *International Raw Commodity Prices and the Devaluation of the Dollar* (Harvard Business School Division of Research, Business Research Studies, No. 5).

pound, so that by the end of the year the cost of cotton, including the processing tax, was well over twice what it was in February, 1933. In addition, labor and overhead costs per pound of finished product advanced sharply because of the provisions in the NRA Code with respect to wages and hours of labor and the limitation on maximum hours of machine activity. The combined effect of these factors was an increased investment in the inventories of raw cotton, goods-in-process, and finished stock.

The processing tax on cotton affected mill costs in two ways, first, by the amount of tax itself, and secondly, by whatever rise in the market price of cotton may be attributed to the program of the Agricultural Adjustment Administration. The effect of the tax on the pound costs of the products of the industry is recorded in Treasury Decision #4433 of the Bureau of Internal Revenue; thus on a bleached broadcloth, for instance, the conversion factor is 126% of the tax of 4.2¢, or 5.292¢ a pound; on unbleached print cloth it is 115%, or 4.83¢ a pound, which on a 64/60 standard construction amounts to 0.9¢ a yard. These conversion factors and amounts (consisting of two tables in the Treasury Decision) are used in calculating the compensatory tax applicable to cotton products imported and in determining the refunds to be allowed on products exported, or on products delivered to charitable organizations.

Although the increased costs to mills for raw cotton affected the current purchases of all companies uniformly, and therefore it might appear that there was no just basis for complaint, nevertheless many mills could not easily afford the extra working capital needed; and thus it became difficult for them to continue operations. The reasons for this situation have been inherent in the industry for the last 10 years. Since 1923 the industry has had more producing capacity than it needed despite the fact that since 1926 some of this excess has been liquidated; that is, the actual number of spindles in place has been reduced at a rate varying between 503,000 spindles and 1,281,000 spindles annually, with an average for the years 1927 to 1934 inclusive, of 866,700 spindles dismantled.[2] From 1928 to 1933, moreover, the gross manufacturing margin, which is the difference between the selling price of cloth and the raw cotton cost, declined for most products of the industry. On print cloths, for instance, the yearly averages of the monthly average margins for the three most common print cloth constructions were as follows:[3]

1928	17.0¢ a pound	1931	12.7¢ a pound
1929	15.2¢ " "	1932	10.3¢ " "
1930	14.0¢ " "		

With such manufacturing margins, many mills were unable to cover their total costs of production, including depreciation, and in 1931 and 1932 manufacturing margins were below the out-of-pocket costs of many producers. These mills in some cases were able to avoid bankruptcy or receivership only because a declining price of raw cotton released working capital for the maintenance of factory operations. With the upturn of cotton prices and production

[2] For data, see *Ten Years of Cotton Textiles*, published annually by the Association of Cotton Textile Merchants of New York.

[3] Taken from p. 6 of Statement of George A. Sloan, Chairman of the Cotton Textile Code Authority, before the hearing on price advances conducted by the National Recovery Administration in Washington on January 9, 1934.

costs in 1933 it was not long before such mills faced the prospect of closing down or liquidating; a few were able to finance the higher inventories of cotton by bank loans. The temporary spurt of demand in 1933 and the machine-hour limitations of the NRA Code enabled some of these mills to continue for a time, but since 1934 their situation has been precarious, and many have had to curtail operations or close. Even though the mills in financial difficulties were handicapped by the processing tax, it is only fair to point out that rising prices of cotton would have caused trouble for some of these mills anyway.

EXHIBIT I

PRODUCTION OF COTTON GOODS
Selected Items, 1925–1933
(In Square Yards, Except as Noted)

	1933	*1931*	*1929*	*1927*	*1925*
Sheetings	1,680,323,055	1,359,686,479	1,693,167,162	1,857,476,174	1,638,168,738
Print cloth	1,709,959,692	1,586,338,969	1,703,025,248	1,583,861,282	1,166,374,053
Tire fabrics	146,207,910	156,749,869	302,864,499	225,931,642	242,126,459
Denims	268,788,249	202,110,728	249,891,122	254,117,955	180,491,656
Napped fabrics	377,791,171	288,072,854	323,140,452	400,097,211	340,415,819
Shirtings	278,348,981	273,177,914	317,045,592	378,530,166	455,396,750
Plushes, velvets, velveteens	17,709,544	23,793,952	52,867,724	42,689,229	33,478,404
Drills	191,986,866	184,646,435	324,041,245	347,775,666	286,114,586
Twills and sateens	274,153,293	201,434,466	284,117,406	413,996,565	532,830,805
Towels, toweling and wash cloth	149,944,841	158,377,562	169,694,153	169,997,031	126,565,750
Lawns, nainsooks, cambrics, & similar muslins	295,440,797	181,354,884	226,553,738	272,453,611	326,087,427
Ginghams	69,569,184	56,312,817	147,120,296	290,618,626	356,475,999
Osnaburgs	130,887,484	109,081,127	145,744,846	164,975,794	118,068,963
Bedspreads and quilts	50,471,630	55,927,388	52,901,717	71,282,515	52,636,525
Tickings	47,284,608	32,416,337	42,410,547	59,283,350	48,362,153
Cotton table damask	15,818,392	20,523,848	35,868,245	33,523,412	53,468,297
Cotton yarns produced for sale (pounds)	498,465,743	410,160,186	647,725,439	664,334,562	626,356,804

Source: Bureau of the Census, U. S. Department of Commerce.

The next important objection to the cotton processing tax is that by increasing costs, and thereby prices, it restricted the demand for cloth. One might almost begin and end an argument on the relation between demand and price by stating that with a stable purchasing power among consumers higher prices for particular commodities normally tend to reduce substantially the quantity demanded, except for the commodities for which the demand is very inelastic. In the latter circumstance the quantity demanded changes relatively little with changes in price. Whenever a demand is inelastic, the possibilities of shifting to consumers a tax, such as the processing tax, are greater than in instances of elastic demand. The facts on demand for cotton textiles are therefore needed for argument. Without satisfactory statistics of consumption it is difficult to make conclusive statements with respect to the effect of prices upon the quantity of cloth consumed, but in the absence of such data a brief interpretation of the statistics of production is pertinent.

The production of selected items of cotton goods for the census years 1925 to 1933 were as shown in Exhibit I. Of these years, 1927 was the peak for production in the industry, 1929 was the last year before depression, 1931 showed the early effects of the depression, and 1933 was a combination

of depression and recovery. With the exception of bedspreads and quilts, production of all items was lower in 1931 than in 1929. In 1933, production had increased over 1931 for all items except tire fabrics, plushes, towels, bedspreads, and cotton table damask. The total production for 1931 was approximately 83.5% of 1929, and for 1933 it was 95% of 1929. For the years 1930 and 1932, however, estimates of the Association of Cotton Textile Merchants for production were only about 76.5% and 75.5% of the 1929 figure. According to the census reports, the aggregate value of products manufactured in 1929 was $1,524,177,087, and the value for 1933 was $874,580,871. Thus the production of 1933 was 95% of 1929, but the aggregate value was only about 57.5%.

In addition to estimates of production for non-census years, made on the basis of spindle hour activity and related factors, the Association of Cotton Textile Merchants[4] also prepares an annual estimate of the cotton textiles available for per capita domestic consumption, which is the domestic production minus exports plus imports, divided by the estimated population at July 1st. In Exhibit II, the data of the Association on textiles available for per capita consumption are presented, together with the average monthly price for New York spot cotton.

From the foregoing statistics several general conclusions may be drawn with regard to the production of cloth and the prices of raw cotton. Over a period of years the average annual level of the price of raw cotton does not appear to have affected the supply of cloth available for per capita consumption. On the basis of this generalization, one might have concluded in 1933 that the processing tax would not curtail production, and the statistics indicate that such a deduction would have been correct. They show further that production was relatively much better in 1933 than in 1932. But the interpretation should not stop there, for one should ask whether the decline in production in 1934 was the result of the processing tax. There are two plausible explanations for the decline in 1934 besides the processing tax. The textile strike of September, 1934, crippled the industry for nearly a month and accordingly reduced production. Also, large stocks of cloth were on hand in the early part of 1934 so that production was reduced somewhat; in fact, these excess stocks caused the curtailment in the summer of 1934.

[4] *Ten Years of Cotton Textiles.* 1935 edition.

EXHIBIT II

COTTON TEXTILES AVAILABLE FOR PER CAPITA DOMESTIC CONSUMPTION AND AVERAGE MONTHLY PRICE OF NEW YORK SPOT COTTON FOR THE YEARS 1926–1934

	*Textiles Available for per Capita Consumption** (*Square Yards*)	*New York Spot Cotton*† (*¢ per Pound*)
1926	64.25	17.53
1927	71.73	17.52
1928	62.50	19.93
1929	66.14	19.13
1930	50.14	13.58
1931	54.88	8.56
1932	48.86	6.44
1933	62.40	8.70
1934	54.59	12.40

* Source: *Ten Years of Cotton Textiles.*
† Source: Copeland, Melvin T., *International Raw Commodity Prices and the Devaluation of the Dollar* (Harvard Business School Division of Research, Business Research Studies, No. 5), p. 6, and Survey of Current Business.

Another possibly significant feature of the statistics in Exhibit II is what appears to be a two-year cycle of demand. In the year 1926, 64.25 square yards were available for per capita consumption, and in 1927, 71.73 square yards; the average price of cotton for the calendar years was practically the same. The price of cotton was higher,

however, in the latter part of 1927 than earlier in the year, and this fact may have stimulated speculative purchases among merchants. In 1928, the estimate of consumption declined but rose in 1929; again the average prices of cotton for the calendar years were nearly alike. Beginning in 1930, the effect of the depression was manifest in the data, but the two-year cycle continued. The year 1933 was one of speculative purchasing in the second quarter and also one of excessive inventory accumulation toward the end of the year, so that a reaction in 1934 might have been expected whether there were a processing tax or not. On the same theory, 1935 should be a better year than 1934, but the spindle hour activity of the first six months of 1935 was only 80% of what it was in a similar period in 1934. The year 1935 has been beset by so many uncertainties that it is difficult to say which one was most responsible for the decline in production below the estimate. The inventory situation, the outlook for the price of cotton, the processing tax, and the uncertainty until May about the NRA, have all contributed to a restriction of demand. The decline in production in 1935 therefore cannot be attributed wholly to the burden of the processing tax. An explanation of the apparent two-year cycle may be in the variation from high to low in the stocks of retailers and wholesalers of textile products. It is interesting to note that the 1930–1934 average production available for per capita domestic consumption was 54.17 square yards, and the average for 1933–1934 was 58.49 square yards; on the basis of these figures, the year 1934 was better than the average for the depression years, and the average of 1933–1934 reflects a higher average consumption in spite of higher prices.

A third objection frequently made to the processing tax is that producers are unable to shift the tax to customers. From the point of view of a mill management the processing tax may be injurious because the gross manufacturing margin is lessened by the absorption of a part of the tax burden, or because the volume of demand is decreased and thereby gross income is reduced.

Data showing the manufacturers' gross margin by months are available in Exhibit III. These figures indicate that the gross margin for the month of August, 1933, was the highest on record since recovery began. As soon as the NRA Code and the processing tax became effective the amount of the gross margin declined. The effect of the speculative boom of the second quarter of 1933 in cotton goods was reflected in a higher gross manufacturing margin for these cloths. Such trends in margins on these and other products permitted 206 companies representing 53% of the total looms reported to the United States Bureau of the Census to earn at an annual rate of 10.49% on their average investment in the July-December period of 1933.[5] From January to June, 1934, these same mills earned at an annual rate of only 5.40% because margins had declined further. At the level of margins since July, 1934, I estimate that the 206 mills as a whole have operated at a loss.

No conclusion can be reached as to how much of the decline in gross manufacturing margins was the result of inability to shift the processing tax and how much was the result of the

[5] See *Textile Report* of the Federal Trade Commission, Part II, Appendix Table III, March 8, 1935.

absorption of increased costs under the NRA. But there can be no doubt that the persistent decline in the facts that opposition developed to both the NRA Code and the processing tax.

In summary, it seems that the combined effects of NRA and of the processing tax after the initial speculative boom had collapsed were some

EXHIBIT III

AVERAGE MONTHLY PRICES (IN CENTS) OF RAW COTTON PER POUND AND OF CLOTH OBTAINABLE PER POUND OF RAW COTTON AND THE MARGIN BETWEEN THESE PRICES, 1929–1930 TO 1933–1934

(Division of Cotton Marketing, Bureau of Agricultural Economics)

Week Ended	*Raw Cotton**	*Cloth, 17 Constructions†*	*Margin‡*	*Week Ended*	*Raw Cotton**	*Cloth, 17 Constructions†*	*Margin‡*
1929–1930				*1931–1932*			
August 2	18.98	31.16	12.18	August 7	7.70	18.84	11.14
September 6	18.77	31.69	12.92	September 4	6.47	17.23	10.76
October 4	18.38	32.13	13.75	October 2	5.53	16.16	10.63
November 1	17.66	32.08	14.42	November 6	6.29	15.57	9.28
December 6	17.15	30.08	12.93	December 4	5.87	14.89	9.02
January 3	17.05	29.43	12.38	January 8	6.06	14.52	8.46
February 7	15.77	28.22	12.45	February 5	6.40	15.57	9.17
March 7	14.76	27.32	12.56	March 4	6.81	15.88	9.07
April 4	16.10	27.06	10.96	April 1	6.06	15.54	9.48
May 2	15.58	26.72	11.14	May 6	5.58	13.82	8.24
June 6	15.09	26.27	11.18	June 3	5.18	13.03	7.85
July 3	12.86	24.63	11.77	July 1	5.32	12.77	7.45
1930–1931				*1932–1933*			
August 1	12.32	24.13	11.81	August 5	5.76	13.03	7.27
September 5	10.76	22.66	11.90	September 2	8.52	17.77	9.25
October 3	9.92	23.05	13.13	September 30	7.27	16.81	9.54
October 31	10.69	23.06	12.37	November 4	6.12	14.78	8.66
December 5	9.97	22.76	12.79	December 2	5.84	13.76	7.92
January 2	9.34	21.45	12.11	January 6	6.14	13.74	7.60
February 6	9.99	20.89	10.90	February 3	5.96	13.28	7.32
March 6	10.76	21.65	10.89	March 3	6.04	13.04	7.00
April 3	10.22	21.72	11.50	March 31	6.33	13.76	7.43
May 1	9.48	20.56	11.08	May 5	8.19	17.19	9.00
June 5	8.20	19.51	11.31	June 2	9.25	22.37	13.12
July 3	9.83	20.40	10.57	June 30	10.12	25.13	15.01

Week Ended	*Raw Cotton**: *Without Tax*	*Raw Cotton**: *Plus Tax§*	*Cloth, 17 Constructions†*: *Plus Tax*	*Margin‡*: *Without Tax*	*Margin‡*: *Plus Tax*
1933–1934					
August 4	10.18	12.85	31.15	18.30	20.97
September 1	9.33	13.33	29.10	15.77	19.77
October 6	9.57	13.57	28.30	14.73	18.73
November 3	9.51	13.51	27.27	13.76	17.76
December 1	9.85	13.85	26.68	12.83	16.83
January 5	10.52	14.52	27.02	12.50	16.50

Source: United States Department of Agriculture, *Agricultural Adjustment—May, 1933, to February, 1934*, pp. 240–241.

* Average price of Middling ⅞-inch cotton in 10 southern markets plus average grade and staple premiums (or minus discounts) in 6 southern markets as follows: For print cloths and sateens, Strict Middling 1-inch premiums; for sheetings and twills, Middling $1\frac{5}{16}$-inch premiums; 1 drill Strict Middling $1\frac{5}{16}$-inch premiums; and ducks, Strict Low Middling discounts; no premiums or discounts for other constructions.

† Average prices per 0.85 pound (i.e., allowing 15 per cent tare and waste) of 17 constructions of cloth including 6 print cloths, 3 sheetings, 4 drills, 2 ducks, 1 twill, and 1 sateen. Computed from the average gray cloth prices per yard (f.o.b. mill) quoted in the International Textile Apparel Analysis.

‡ Difference between the prices of cotton cloth and raw cotton.

§ At the rate of 4 cents per pound gross weight.

margin represented an unsatisfactory condition for the industry, and it is not surprising in the light of such

reduction in total demand for cotton textiles in 1935, and reduced margins in 1934 and 1935. In all probability, however, the margins might have been larger had the industry not accumulated excess inventories. It is a well-established principle in the theory of the incidence of taxes that supply normally must be reduced if the tax is to be shifted to the smaller demand which often results from the imposition of a tax. The cotton industry, on the contrary, allowed its inventories to reach unprecedented heights in the fall of 1933; under such conditions margins naturally declined late in that year. The reduced demand of 1934 made stocks seem excessive, with the result that inventories continued to exert pressure on the price structure. The curtailment of production in the summer of 1935 was designed to reduce inventories also, and it has been moderately successful. With a revival of demand caused by the need of dealers to replenish stocks and with an inventory more nearly suited to current demand, there should soon be an improvement of margins even if the processing tax continues.

Thus far in the discussion of the cotton processing tax no attention has been given to the legal or political aspects of the tax. The highest court will soon pass on the constitutionality of the tax and will resolve the legal questions for readers. Politically, the tax has helped the farmer group at the apparent expense of consumers, mill workers, and textile operators. On the other hand, the tax may have contributed to the reëstablishment of balance between agriculture and industry in the country. Before the manufacturing population condemns these taxes, they should consider the long history of protection for their industries.

It is not the purpose of this article to support or to condemn processing taxes as such, but it is clearly fair to conclude that the cotton processing tax has caused some difficulties for the industry, but that these have been exaggerated. The removal of the tax, if accomplished, will not correct the problem of excess capacity or lead to a new and sound inventory policy.

EXHIBIT IV

UNITED STATES IMPORTS OF JAPANESE COTTON TEXTILES

Selected Items—Square Yards*

Item	1929–1933	*1929*	*1930*	*1931*	*1932*	*1933*
Floor coverings		4,652,611	3,540,060	5,783,792	6,718,041	9,869,166
Bleached cloth		176,308	47,624	100,266	51,397	256,624
Handkerchiefs† (pounds)		16	19	273	6,144	‡
Printed and colored cloth		1,038,473	967,068	669,942	737,392	859,089

Source: United States Department of Commerce: *Foreign Commerce and Navigation of the United States.*

* Square yards unless stated.
† Not of lace or embroidered.
‡ Pounds not given; in value nearly three times 1932.

Japanese Competition

The effect of Japanese competition upon the American textile industry has also been exaggerated. The general slump since 1933 in the domestic cotton manufacturing industry cannot be attributed to the import of cotton textiles from Japan; on the other hand, the growth of imports of selected items has been so spectacular that it has endangered sections of the industry. The statistics on imports of selected items

from Japan shown in Exhibit IV reflect typical situations.

Industrial leaders have disliked the sudden influx of Japanese merchandise. In the case of one class of handkerchiefs and mufflers, for instance, imports from Japan were negligible until 1932 when they were 7% of the total for such merchandise. Since 1929 there has been an ever increasing supply of floor coverings from Japanese sources; except for the year 1932 these have been about 80% to 82% of the total imported into the United States. The volume of printed and colored cloths has varied with the general volume of imports and with business conditions. Imports of bleached cloth in 1933 were over five times the quantity in 1932, and exceeded the quantity for 1929 by 45%. Recent unofficial data, shown in Exhibit V, reveal a still further shift in bleached goods; the increase of 1935 over 1934 is eight times. The United States government agent in Tokyo stated that the exports of Japan to this country for June, 1935, were the lowest since October, 1934. His figures on cotton textile exports to the United States for recent months were as shown in Exhibit VI.

In addition to the sudden changes in the quantity of Japanese imports into the United States, industrial leaders have been forced to cope with the exceptionally low prices at which the Japanese are able to sell. This problem of Japanese prices and resulting sudden shifts has confronted other nations also. They have met it by quota systems, prohibitions, and higher tariffs. The Cabinet Committee in commenting on the Japanese situation said:

> Finding from the facts before us that the domestic market has been disturbed by recent imports of cotton textiles from Japan, which, though small in proportion to total national production, have nevertheless shown sudden and unusual increase in certain countable cloths, we recommend that to deal with this special situation steps be taken to control these imports, preferably by means of a voluntary and friendly agreement with Japan on limitations of shipments of cotton products to the American market.
>
> We recommend this course among other reasons because Section 3(e) of the National Industrial Recovery Act is no longer operative and because the only available mechanism under the flexible tariff provisions would be broader than the problem sought to be dealt with. Other and similar agreements already concluded with Japan

EXHIBIT V

JAPANESE COTTON TEXTILE EXPORTS TO THE UNITED STATES
(Square Yards)

	Gray Cloth	*Bleached Cloth*	*Other Cloth*	*Total*
June, 1934	201,000	469,000	197,000	867,000
June, 1935	75,000	1,990,000	643,000	2,708,000
1st 6 months, 1934	892,000	3,140,000	794,000	4,826,000
1st 6 months, 1935	312,000	24,307,000	6,497,000	31,116,000

Source: Bureau of Foreign and Domestic Commerce in Coöperation with Consular Service of the Department of State. *Monthly Trade Report, Japan.* July 24, 1935, p. 15.

EXHIBIT VI

TOTAL JAPANESE COTTON TEXTILE EXPORTS TO THE UNITED STATES
(Square Yards)

October, 1934	1,718,000
November, 1934	3,629,000
December, 1934	5,663,000
January, 1935	7,131,000
February, 1935	5,876,000
March, 1935	4,642,000
April, 1935	6,467,000
May, 1935	4,291,000
June, 1935	2,708,000

Source: Bureau of Foreign and Domestic Commerce in Coöperation with Consular Service of the Department of State. *Monthly Trade Report, Japan.* July 24, 1935, p. 15.

hold out the prospect of a successful application of this method to the problem of cotton textile imports from Japan.

. . . . . .

Attention is called to the fact that discussions are in progress with Japan with a view to regularizing the textile trade of the Philippine Islands whereby an important part of the Philippine market would be retained for American producers.[6]

It is important for several branches of the industry that the problem of Japanese imports be handled promptly by the State Department.

Before we leave the question of Japanese imports, it is advisable to point out that the problem may be of longer duration than the Cabinet Committee thought when it made its recommendations. Temporarily at least, the Japanese diplomats should be willing to make concessions to this country in order to keep this nation from adopting the extreme retaliatory methods of other countries. Furthermore, if Japan attains its economic objectives in Asia, possibly the problem of imports into this country will be solved automatically; in other words, the Japanese will not need the American market to support the industrial machinery of Japan. Be that as it may, it is true that the prices at which the Japanese sell in world markets are based on a different standard of living from that in this country or in Europe.

For many products the Japanese should be able to undersell mills in this country because the Japanese mills have newer and frequently more efficient machinery, longer hours of operation, and a lower wage cost. The Commercial Attaché of the American Embassy at Tokyo in his report for 1934 made several significant statements. In one section he said that Japan's exports are not sold below production costs, and that labor conditions adhere closely to the Japanese standard of living.[7]

In commenting on the low wage of Japanese workers, the Commercial Attaché said:

> There is a widespread opinion abroad that the low wage of Japanese workers is the result of ill treatment. This idea is definitely refuted by practically all close observers, both foreign and Japanese, of factory conditions in Japan. There is naturally some difference in living conditions as provided by various industrial plants throughout the country, and a very wide difference between these and the standards of living prevailing in Europe and the United States. In the main, however, the standard of living provided for both male and female operators adheres very closely to, and in many cases excels, the conditions found in the average Japanese home. Furthermore the level of wages in Japan, on the whole, appears to meet the requirements of the workers so it can hardly be claimed that they are underpaid. Another factor often entirely disregarded in treating Japanese wages is the bonus system which in many cases amounts to as much if not more than the actual wages. Take for example the average wage of female workers in the spinning industry, which is about 70 sen (U. S. $0.21) per day. Of this amount 30 sen is sufficient for living expenses, of which 15 sen is expended for food and 15 sen for other necessities, the balance of 40 sen can be saved. In addition to the 70 sen wages, the bonus received from the company will increase this wage rate by about 45 sen to Yen 1.15, to which should be added 18 or 20 sen for the cost to the company of housing facilities, etc., bringing the total to Yen 1.35. Girls live very

[6] From Summary of the Cotton Textile Report in *The New York Times*, August 22, 1935, p. 33.

[7] United States Department of Commerce, Bureau of Foreign and Domestic Commerce. *Annual Trade and Economic Report, Japan, 1934*, p. 96.

comfortably in dormitories not inferior to the average school dormitories in Europe and the United States. They learn sewing, flower arrangement, dancing, etc. Practically every large factory has some facilities for physical exercise, such as various games, calisthenics, walking, etc. There are radios with loud speakers in a great many plants, and oftentimes motion pictures.[8]

In December, 1934, the average daily wage for male workers for 59 classes of industry was Yen 2.03 for 10.27 hours of work, and the average daily wage for female workers for 14 classes of industry was Yen 0.76 for 9.27 hours of work.[9] American textile mill workers, who are among the lowest paid employees in this country, cannot meet the wage cost of Japanese workers.

Wages

Since wages in the cotton textile industry are among the lowest in manufacturing industries of the United States, it would be unfortunate if future Japanese imports were to undermine this scale. The Bureau of Labor Statistics in its report on wage rates and weekly earnings in the cotton textile industry for 1933–1934 aptly summarized the situation with respect to the level of wages as follows:

> Since the adoption of the cotton-textile code average hourly earnings have increased more in the manufacture of cotton goods than in any other industry except men's furnishings. Between July 1933 and July 1934, according to the reports made to the Bureau of Labor Statistics, average hourly earnings increased 64.5 per cent. . . .
>
> Though the gap between wages in the cotton-goods industry and those in other industries is no longer so large as it was before the code was adopted, cotton-textile manufacturing remains a relatively low-wage industry. In October 1934 the average hourly earnings in all manufacturing industries in the United States was 55.4 cents; the average for cotton goods was 38 cents. The United States average is for 85 industries;[10] these industries employ more than four-fifths of all the wage earners in manufacturing. Of this long list of industries only 4 paid hourly rates lower than those in the cotton-textile industry—cigars and cigarettes, 37.2 cents; canning and preserving, 36.8 cents; fertilizers, 36.3 cents; and, at the bottom of the list, cottonseed oil, cake, and meal, 21.9 cents. In July 1933, the month before the code went into effect, average hourly earnings were secured for 74 industries by the Bureau of Labor Statistics. Cotton goods, with an average of 23.1 cents, was at the bottom of the list, excepting only cottonseed oil, cake, and meal, which averaged 19.3 cents.
>
> This is no new phenomenon. In 1929, when only 55 major industrial groups were covered by the employment and pay-roll reports of the Bureau of Labor Statistics and for which only average weekly earnings are available, the cotton-goods industry was at the bottom of the list in 7 months. In each of the other months the industry was next to the bottom. There were only seven industries with average weekly earnings of less than $20 in any one of the last 3 months of the year. In the manufacture of cotton goods the average was $15.64 per week.
>
> It should be noted that the average hourly and weekly earning figures given have only an approximate validity. But even more refined comparisons, which exclude differences in pay based on region and sex, indicate the characteristic of low wages in cotton textiles. For example, loom fixers constitute the most highly paid occupation in the industry; they are almost exclusively men. This "aristocracy" of the industry, with earnings at least one-fifth again as large as the next highest significant occupation, constitutes about 4 per cent of the total number employed, and had aver-

[8] *Ibid.*, p. 134.
[9] *Ibid.*, p. 137.
[10] "Trend of Employment," *Monthly Labor Review*, January, 1935, pp. 184–187.

age hourly earnings of 64.9 cents in New England in August 1934. There were 11 industries in which the average hourly earnings of all workers, skilled and unskilled, were higher than those of the most skilled occupation in cotton textiles in New England, the high-wage area of the industry. Together these industries employed more than one-quarter of the manufacturing wage earners of the country in August. They were paying average wages to skilled and unskilled approximating or exceeding those of the most highly skilled group in cotton textiles.[11]

Over a period of the next few years management should expect labor leaders to try to increase the wages paid in the industry. No doubt such a trend will be resisted; nevertheless an increase in the annual income of textile mill workers is an objective toward which both management and labor should work together, for wages in the textile industry are comparatively low. The Cabinet Committee reported that wages

> . . . averaged $14 to $16 per week before the depression and reached a new low of about $11 in 1932. In the first half of 1935 they were about $13 a week. Annual earnings were $700 or $800 per employe prior to 1929, with a low of about $570 in 1933. This is to be compared with an average for all manufactures of $1200 to $1300 with a low of about $870.

Readjustments upwards should be made slowly, and should take place when demand expands and not during periods when the industry is barely able to meet out-of-pocket expenses.

Such efforts to increase wages should be directed at improving the wage earners' annual income, which, it is noted, may be accomplished in some cases by lowering the hourly wage rates while at the same time increasing the hours of work for the year. Labor leaders too often have followed the example of business managers and have maintained prices (wage rates) and thereby sacrificed volume (hours of work), thus reducing aggregate income (annual earnings). There are several wage disputes now in process of settlement, in which labor undoubtedly would gain in annual income if it would accept an hourly decrease in wages. Such a situation exists to some extent for skilled workers in New England mills. Many of these employees are underpaid in the sense that commensurate skill in other industries receives higher hourly rates and greater weekly incomes. But unless this skilled labor is willing to accept a temporary loss in transferring its skill to other industries, the workers must face the fact that northern mills have to meet the competition of southern mills, in which wages for skilled workers are much lower than in the North.

The survival of some northern mills, moreover, is dependent upon a satisfactory settlement of the wage differential problem between northern and southern mills. In a recent study the Bureau of Labor Statistics prepared an historical review of wage rates and wage differentials[12] that clarifies the facts on this problem. The Bureau found that greater increases in wages took place under the Code in the South than in the North. In August, 1934, wages in the North in each occupation

[11] Hinrichs, A. F., "Wage Rates and Weekly Earnings in the Cotton-Textile Industry, 1933–34," *Monthly Labor Review*, March, 1935, pp. 613–614.

[12] Hinrichs, A. F., assisted by Ruth Clem, "Historical Review of Wage Rates and Wage Differentials in the Cotton-Textile Industry," *Monthly Labor Review*, May, 1935, pp. 1170–1180. Readers are urged to read this article.

EXHIBIT VII

AVERAGE HOURLY EARNINGS IN COTTON GOODS MANUFACTURING IN NEW ENGLAND AND SOUTH ATLANTIC STATES, 1924–1934, BY OCCUPATIONS

(*In Cents*)

Occupation	*New England*					
	1924	*1928*	*1930*	*July 1933*	*August 1933*	*August 1934*
Males						
Loom fixers	69.1	60.0	58.5	46.3	63.1	64.9
Slasher tenders	64.7	51.2	49.7	*	*	*
Warp-tying machine tenders	58.5	49.8	49.0	35.0	48.0	50.1
Card grinders	56.9	49.4	47.8	34.2	48.3	50.4
Weavers	53.8	44.7	46.2	29.9	43.9	44.2
Slubber tenders	55.5	46.8	46.6	30.8	46.6	49.1
Speeder tenders	51.4	44.5	45.2	29.6	43.6	45.5
Card tenders	46.5	40.5	40.2	28.8	40.7	41.7
Doffers	45.3	39.3	38.6	27.0	41.7	43.8
Picker tenders	43.6	37.2	36.2	28.6	40.6	41.0
Drawing-frame tenders	39.6	35.1	35.1	25.9	38.3	39.2
Females						
Weavers	48.6	41.8	42.6	28.0	42.6	43.5
Drawers-in, hand	44.5	40.3	40.6	33.6	43.6	43.1
Speeder tenders	44.2	38.0	36.3	24.9	39.8	40.4
Warpers	44.3	37.7	36.0	28.4	39.2	40.0
Spinners, frame	42.5	35.9	34.9	23.6	37.3	37.8
Drawing-frame tenders	35.1	31.3	32.4	24.0	35.6	35.4
Creelers	32.9	28.6	29.0	24.6	33.6	34.6
Spooler tenders	39.0	30.7	29.2	22.3	36.4	38.0
Trimmers or inspectors	31.9	27.0	27.9	21.4	33.3	33.5
	South Atlantic and Alabama					
Males						
Loom fixers	41.6	39.9	42.0	32.3	49.8	50.7
Slasher tenders	33.4	32.3	32.4	*	*	*
Warp-tying machine tenders	37.5	35.9	37.1	24.9	42.4	43.4
Card grinders	37.8	35.8	36.2	27.1	44.2	44.4
Weavers	35.9	34.1	34.9	23.8	39.6	40.3
Slubber tenders	33.1	31.7	32.1	21.1	37.2	37.4
Speeder tenders	33.9	31.7	32.0	21.5	36.5	36.7
Card tenders	26.8	26.0	26.4	19.1	32.4	32.5
Doffers	28.4	28.0	28.7	19.6	34.5	35.0
Picker tenders	24.4	23.2	23.9	17.1	30.9	31.3
Drawing-frame tenders	26.8	26.2	26.1	19.2	32.7	33.7
Females						
Weavers	31.3	30.8	31.9	21.5	38.6	38.4
Drawers-in, hand	28.1	29.7	29.8	23.0	38.3	39.4
Speeder tenders	29.6	28.5	28.3	19.6	34.5	35.3
Warpers	29.8	27.1	28.6	19.4	29.0	33.3
Spinners, frame	23.4	22.8	22.5	16.2	32.2	32.0
Drawing-frame tenders	20.2	20.4	21.3	15.4	31.2	30.8
Creelers	23.0	22.1	23.3	15.8	31.6	31.0
Spooler tenders	22.1	20.9	22.7	16.1	32.7	33.3
Trimmers or inspectors	20.3	20.8	20.9	15.9	31.0	31.0

Source: *Monthly Labor Review*, May, 1935, p. 1171.

* Included under "weavers."

were at or near the levels of 1926 and 1928, but in general wages were higher in 1934 than they had been in 1928. Wages for skilled groups, however, were lower than they were in 1926 except for loom fixers. In Southern States the wage increases were so marked in the less skilled female occupations that hourly earnings in 1934 were nearly equal to the wage rates of 1920. The result of these movements up to 1935 has been to reduce the regional differential between the North and the South. The average hourly earnings in New England and Southern States were as shown in Exhibit VII, and the ratio of average hourly earnings in New England to those in South Atlantic States was as shown in Exhibit VIII.

Even though the wage differentials between the North and the South for all workers have narrowed, the statistics in Exhibits VII and VIII show that some of the higher paid workers in the North are out of line with the general average. These facts explain to some extent why northern mills have tried recently to reduce the wage rates for skilled workers, and they also indicate why northern operators hoped the Cabinet Committee would discuss the problem of differentials.

Labor leaders have proposed that a uniform wage scale be established for the North and the South. This suggestion is politically impractical, however. Labor unions are not yet strong enough to bring it to pass, and it would prove to be poor politics for the

EXHIBIT VIII

RATIO OF AVERAGE HOURLY EARNINGS IN NEW ENGLAND TO THOSE IN SOUTH ATLANTIC STATES, BY OCCUPATIONS

Occupation	*Sex*	*Average Ratio 1920–32*	*1912*	*1916*	*1920*	*1924*	*1930*	*1932*	*July 1933*	*August 1933*	*August 1934*
Slasher tenders	Male	164.8	166.0	189.1	150.7	184.7	153.3	154.4	*	*	*
Spinners, frame	Female	159.0	140.1	171.2	134.2	181.6	155.1	149.7	145.7	115.8	118.1
Picker tenders	Male	158.3			140.2	178.6	151.4	148.2	167.3	131.4	131.0
Card tenders	"	157.6	127.6	142.6	138.7	173.5	152.2	150.4	150.8	125.6	128.3
Loom fixers	"	149.4	146.8	163.7	133.7	166.1	139.2	139.7	143.3	126.7	128.0
Slubber tenders	"	148.8		157.6	127.5	167.6	145.1	142.0	146.0	125.3	131.3
Spooler tenders	Female	148.1		166.3	130.9	176.4	128.6	134.0	138.5	111.3	114.1
Drawers-in, hand	"	144.5		161.8	133.2	158.3	136.2	133.3	146.1	113.8	109.4
Doffers	Male	141.2		166.6	118.7	159.5	134.4	135.3	137.8	120.9	125.1
Warp-tying machine tenders	"	139.8			127.5	156.0	132.0	129.3	140.6	113.2	115.4
Trimmers or inspectors	Female	137.4	145.5	158.0	125.1	157.1	133.4	122.5	134.6	107.4	108.1
Warper tenders	"	136.1		139.2	121.9	148.6	125.8	130.1	146.4	135.2	120.1
Card grinders	Male	135.6			117.0	150.5	132.0	122.6	126.2	109.3	113.5
Weavers	Male and Female	133.2	128.9	143.2	114.8	149.2	131.6	120.7	126.3	110.4	110.6
Drawing-frame tenders	Male and Female	131.0			106.3	142.9	134.1	130.7	130.3	112.9	112.3
Creelers	Female	129.1			114.3	143.0	124.4	129.6	155.7	106.3	111.6
Speeder tenders	Male and Female	128.8			112.0	139.6	121.8	127.6	122.6	113.3	114.6
Weighted average†			137.7	158.7							
				160.2	128.2						
					126.7	164.3	139.0	125.8	138.5	115.9	117.6

Source: *Monthly Labor Review*, May, 1935, p. 1173.

* Included under "weavers."

† Three series of weighted averages are given, with an overlap in the years 1916 and 1920. The series differ in the comprehensiveness (coverage) of the figures upon which they are based, but the difference is small enough "not to invalidate general conclusions drawn from the data for the entire period" (footnote 4, p. 1172 of *Monthly Labor Review*, May, 1935).

Government to attempt it. The Bureau of Labor Statistics in its study did not make recommendations as to what constituted a proper regional differential though it did state that the question was a matter of national policy of the first order of importance.

A study of effective differentials would include questions of the wage rates and also of the productivity of labor. Probably one reason that there have been more protests against the "stretch-out" in the South is because operators tried to overcome the change in the differential in wage rates by increasing the productivity per worker.

The wage differential problem and the related question of work-load challenge the best efforts of management and of labor leaders because the problem involves many conflicts in view. Northern mills do not have the same interests as southern operators, and what is needed for northern labor may not be desirable as yet for southern labor. Labor wants higher pay and management desires lower costs. Workers wish to restrict output per worker and management expects to increase it. A Cabinet Committee, or no other committee, can be expected to draft a simple solution of this problem that will be applicable to the many branches of the industry. The circumstances of each plant, for instance, deserve considerable weight in the determination of what is a reasonable work-load. Management should not take advantage of workers, and laborers should not oppose all apparent increases in amount of work. Some uniformity in hours of work and in work-load may be hoped for, but inflexible standards are not desirable. In all probability there will be a continuation of the trend toward a narrower wage differential between the North and the South. To some extent skilled labor in the North is at a disadvantage, but it is probable that stronger labor organizations in the South will ultimately raise southern standards somewhat.

Summary

The foregoing analysis indicates that the present troubles of the cotton textile industry are mainly a continuation of the trends of the last ten years. The old difficulties of excess capacity, competing geographical areas, periodic accumulation of excess inventories, and unsatisfactory organization persist. These are fundamental ills which must be corrected before the industry can expect any extended period of prosperity.

Many executives like to think that the abolition of the processing tax on cotton would solve all problems, but this view cannot be accepted. At best, a temporary spurt in demand might follow such governmental action; thereafter large inventories and excess capacity might be expected to exert pressure on the price structure. The declines in gross manufacturing margins that came soon after the imposition of the tax were, in my opinion, to be expected in view both of a level of prices higher than conditions warranted in the spring and early summer of 1933, and of the large accumulation of inventory in the last half of 1933. A continuation of the tax undoubtedly would affect adversely those mills which are in a weak financial position and might reduce demand slightly. On the other hand, in view of the fact that many of the products of the industry are practically necessities of life, the industry could adjust itself to such a tax in a relatively short time. This statement, however, should not be construed as an argument either for or against the processing tax. From

a social point of view it may be argued that these taxes have been justified as temporary palliatives to relieve agricultural depression, but whether such remedies can produce a permanent cure is a separate and very debatable question beyond the scope of this discussion. If labor and capital expect to dispense with such taxes, however, they should offer an alternative plan for handling the agricultural problem.

Japanese imports have provided severe price competition for a few cotton textile products, and the low delivered costs of Japanese products constitutes a potential menace to the low level of American textile wages. It is hoped, therefore, that the State Department will be able to negotiate successfully with Japan for voluntary quotas in order to avoid the more restrictive measures that hamper friendly relations between nations.

On the question of excess capacity there is likely to be a difference of opinion as to the amount of equipment needed and as to the most desirable method of reducing the present excess. The data on demand, referred to earlier in this article, show a considerable variation between periods of prosperity and depression; it is obvious, therefore, that capacity should be available for the peaks as well as the valleys of demand. At the present time the burden of idle capacity in dull periods is unevenly distributed among the producing units of the industry. An even distribution is hardly to be expected in a competitive industry; on the other hand, it seems desirable to have a measure of flexibility in all companies rather than to have most of the burden absorbed by a few companies. The Cabinet Committee's report corroborates my view on the importance of excess capacity as a cause of current trouble, and contains some concrete suggestions on the problems.[13] Possibly the leasing system referred to in the Cabinet Report is designed to spread the cost of idle capacity more evenly among producing units while permitting the most efficient units to operate nearly full time.

The Cabinet Committee Report, it is interesting to note, also emphasizes the internal difficulties which arise in part from the organization of the industry and which result in the maladjustment of supply to demand in short periods. At the request of the Textile Foundation and with the coöperation of the industry, studies on organization and inventory policies have been made.[14] In *Merchandising of Cotton Textiles* the need for producers being in close touch with the market was stressed, and the industry was urged to establish integrated units in order to eliminate the division of responsibility for the merchandising and selling activities in the industry, to provide a basis for constructive sales promotion, and to establish more stable units than now exist. In *Managing Cloth Inventories* the seriousness of the maladjustment of stocks was indicated, and means of handling the problem were suggested. Nothing has happened in the past two years to change the detailed conclusions of these two reports. In spite of the evidence presented in these studies favoring the

[13] When this article was sent to the printer, only newspaper summaries of the Cabinet Report were available, so that extended comment was impossible.

[14] Copeland, Melvin T., and Learned, Edmund P., *Merchandising of Cotton Textiles* (Harvard Business School Division of Research, Business Research Studies, No. 1); Madigan, John J., *Managing Cloth Inventories in the Cotton Textile Industry* (Harvard Business School Division of Research, Business Research Studies, No. 6).

accumulation of facts with reference to the qualitative and quantitative aspects of merchandising, the industry gave up the publication and to some extent the collection of important inventory statistics. The main reason for withholding the data from the public was that buyers used the information more intelligently than the sellers. Such failures of mill owners to use fundamental facts have helped to create the present crisis in the industry.

The cotton manufacturing industry as a whole has been in a state of depression for nearly ten years, and until the fundamental difficulties are corrected it will continue to have more losses than profits. It is only human nature for mill officials to blame the government, labor, and Japan rather than themselves for current difficulties. It is unfortunate, however, that so many executives choose to ignore the facts, or are unwilling to grapple with them. On the other hand, it would be grossly unfair to conclude that many in the industry are not aware of the causes of current conditions; there are many who fully comprehend the present state of affairs and who are courageous enough to wish to tackle the problem. Unfortunately, I fear, they are now only a minority. It may be hoped that in the not too distant future this group may expand into an effective majority.

AMERICAN SILVER POLICY AND CHINA

BY DICKSON H. LEAVENS

DURING the years from 1930 to 1933, when the price of silver was falling, it often was asserted that the decline was affecting seriously the purchasing power of a large fraction of the population of the world, variously stated as from one-half to four-fifths. The writer, early in 1931, pointed out the fallacies of this argument as applied to Mexico, South America, and India, where the currencies were not on a silver basis, and, while admitting some adverse effects on China, concluded that:

> Judging from the history of Chinese trade, it seems probable that it will ultimately adjust itself to any level of silver prices, even though the process may be hard on the trade in some commodities.[1]

That statement was justified by developments which accompanied the low price of silver. The rise in the price of silver in the last two years, however, has brought new difficulties of adjustment, more baffling because the rise has been caused chiefly by artificial interference with the silver market, whereas the decline, to a large extent, was the result of natural economic forces. This article will sketch the background of recent years and the present problems which China faces.

Fluctuations of Silver and Chinese Exchange

The first part of Table I and the left-hand side of Chart I show the annual average price of silver in New York from 1896 to 1934 (pages 47, 48). The average was about 60 cents per ounce, and, except for the wartime rise and the depression fall, the price usually was within 15% of that level.

Since China was on a silver standard, the exchange value of her currency fluctuated in sympathy with the price of the white metal. There was no fixed par of exchange, but the price of silver per ounce in New York on any day, multiplied by the number of ounces of silver in the Chinese currency unit, determined the parity of exchange for the day, that is, the amount in U.S. currency which the Chinese unit would realize if melted and sold as bullion in New York. The actual exchange rate fluctuated within a range of a few per cent above and below parity, corresponding to the silver import and export points.

The present Chinese standard dollar or yuan, adopted in April, 1933, continues approximately the standard of the old Mexican dollar and various Chinese dollars which have circulated during the last generation. It weighs 412 grains, 0.880 fine, and contains just over ¾ of an ounce of fine silver. Hence the parity of exchange on any day may be found approximately by multiplying the New York price of silver on that day by 0.75. The scale at the right-hand side of Chart I is constructed on this basis, that is, the line for $1.00 per ounce is labelled 75 cents for the value of the Chinese standard dollar, and so on. By reading the silver curve against the right-hand scale, the approximate parity of the Chinese dollar currency

[1] Leavens, Dickson H., "Silver and the Business Depression," IX HARVARD BUSINESS REVIEW 3, April, 1931, pp. 330–338.

may be determined. It is evident that with the price of silver fluctuating around 60 cents per ounce, the exchange value of the Chinese dollar usually was between 40 and 50 cents, U.S. currency. The fluctuations of silver and exchange in 1934 and 1935, shown at the right-hand side of Chart I, will be discussed in a later section.

Effects of Exchange Fluctuations on Chinese Trade[2]

The foreign trade of China through the operation of active futures markets in silver, exchange, and gold bars, usually has been able to take care of considerable fluctuations in exchange rates. Adjustment to the wartime rise and the post-war fall was facilitated by the fact that movements in the price of silver were paralleled by movements in world commodity prices.

The precipitous drop in the price of silver in 1930 at first appeared to be very harmful to the import trade, because it seemed likely to raise the price of all imported goods beyond the point at which China could absorb them. Meanwhile, however, world commodity prices were falling, so that many raw materials could be imported at normal prices in Chinese silver currency. The import trade in some consumers' goods, whose world prices did not fall and whose domestic prices had to be increased with the fall in exchange, suffered considerably, but China's import trade as a whole declined no more than did world trade.

A large part of China's export trade consists of raw or semi-manufactured materials, such as silk, bean products, tea, vegetable oils, and skins, which shared in the fall of world commodity prices. The low price of silver made it possible for these Chinese products to compete in the world market without lowering their price in domestic silver currency. In fact, it may be argued that one of the causes of the falling price of silver was the reaction between Chinese internal prices and the world prices of the commodities which she exports. In any case, the Shanghai index of export prices, which is available since 1926 and is shown in Table I and Chart I, remained above the 1926 level in 1930 and 1931, as did other indexes of Chinese prices. The Chinese farmer thus was protected from the drastic price deflation suffered by most countries during that period.

By early 1931 there was a growing realization in Chinese and foreign commercial circles in Shanghai that the low price of silver was to the advantage of China in the midst of a world depression. A low exchange rate brought fewer evils than a low price level. Opinion was not unanimous, however, and some Chinese and foreign leaders still favored an increase in the price of silver. Some importing interests were affected adversely, but on the whole business

[2] The principal sources for this section and much of this article have been, in addition to personal observation and interviews in China in the spring of 1934, the following publications:

The North China Herald, Shanghai, weekly; *Finance & Commerce*, Shanghai, weekly. Respectively the leading foreign newspaper and financial paper in Shanghai, these journals, although having a British viewpoint editorially, publish a variety of material from other foreign and Chinese sources, and give a fair picture of developments.

Salter, Sir Arthur, *China and Silver*. New York: Economic Forum, Inc., 1934. A condensation of a report submitted to the Chinese Government in February, 1934.

Silver and Prices in China, Shanghai, 1935. The report of a Committee for the Study of Silver Values and Commodity Prices, appointed by the Ministry of Industries. It contains much useful material on agricultural prices.

Koh Tsung-fei, *Silver at Work (with Special Reference to China)*, Shanghai, 1935. Statistical studies of various aspects of the silver problem in recent years.

adjusted itself satisfactorily to new conditions.

This adjustment was upset by later developments. The departure of Great Britain and other countries from the gold standard in 1931 raised the exchange value of the Chinese dollar, measured in sterling, yen, and other depreciated currencies; this had a tendency to favor imports from and discourage exports to those countries. The great Yangtse flood in the summer of 1931, the Japanese seizure of Manchuria in the autumn of 1931, and the Japanese attack on Shanghai in early 1932, all interfered with trade. Most important of all, the world price of silver ceased to fall in 1932, but world commodity prices continued downward, so that the Shanghai index of

TABLE I

PRICE OF SILVER, EXCHANGE VALUE OF CHINESE DOLLAR, AND SHANGHAI INDEX NUMBER OF EXPORT PRICES

Date (1)	*New York Price** (2)	*Exchange Value, Chinese Dollar†* (3)	*Shanghai Export Prices‡* (4)
1896	68.2		
1897	60.8		
1898	59.1		
1899	60.5		
1900	62.1		
1901	59.7		
1902	52.8		
1903	54.2		
1904	57.8		
1905	61.0		
1906	67.4		
1907	66.0		
1908	53.5		
1909	52.2		
1910	54.2		
1911	54.0		
1912	62.0		
1913	61.2		
1914	56.3		
1915	51.1		
1916	67.2		
1917	84.0		
1918	98.4		
1919	112.1		
1920	101.9		
1921	63.1		
1922	67.9		
1923	65.2		
1924	67.1		
1925	69.4		
1926	62.4		100.0
1927	56.7		106.1
1928	58.5		104.5
1929	53.3		105.2
1930	38.5		108.3
1931	29.0		107.5
1932	28.2		90.4
1933	35.0		82.0
1934	48.0		71.7
1934 Jan.	44.2	33.6	71.8
Feb.	45.2	34.0	74.2
Mar.	45.9	34.3	71.3
Apr.	45.2	34.0	68.2
May	44.2	32.2	69.7
June	45.2	32.8	71.8
July	46.3	33.7	70.9
Aug.	49.0	34.7	74.2
Sept.	49.5	35.3	71.5
Oct.	52.4	34.4	70.3
Nov.	54.3	33.0	72.0
Dec.	54.4	33.7	75.3
1935 Jan.	54.4	35.0	77.2
Feb.	54.6	36.5	78.0
Mar.	59.1	38.3	74.9
Apr.	67.9	38.8	74.7
May	76.3	41.1	75.0
June	71.9	40.4	70.4
July	68.2	38.7	71.0
Aug.	66.4	36.9	
Sept.	65.4	37.7	

Sources: Price of silver and exchange value of Chinese dollar, 1896–1933: *Annual Report of the Director of the Mint, 1934*, p. 91; 1934: Bank of China, *Financial Market Statistics*, monthly; 1935: computed by the writer from daily quotations in *Commercial and Financial Chronicle*, weekly.

Shanghai index number of export prices: *Prices and Price Indexes in Shanghai*, monthly.

* Average price, cents per ounce, 0.999 fine.

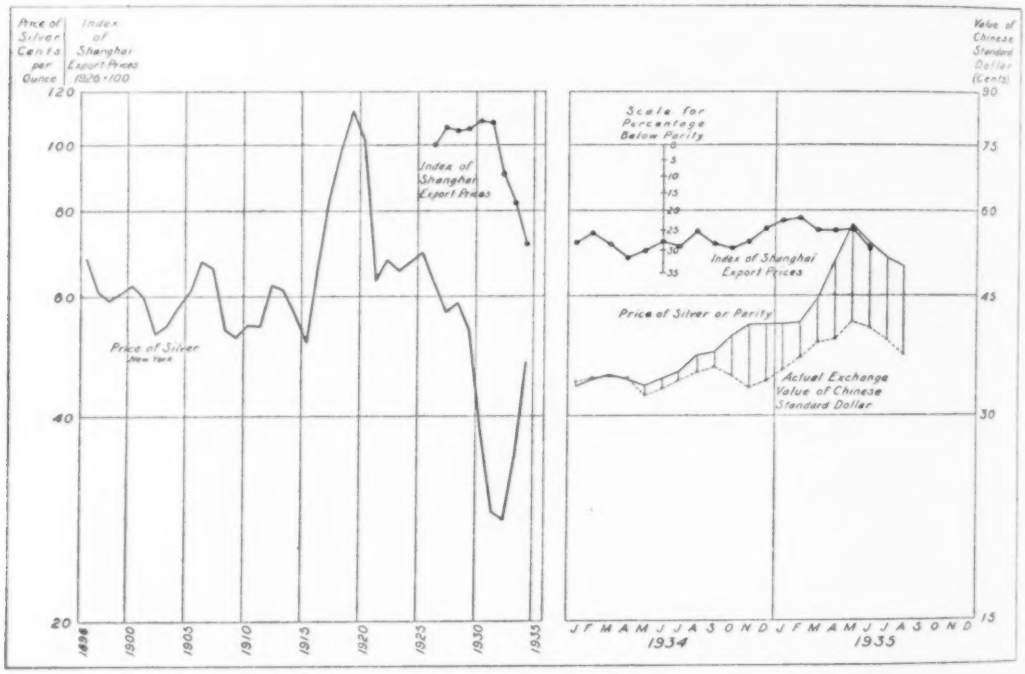
† Average in U. S. cents.

‡ Average, 1926 = 100.

export prices began to fall, as did, to a lesser extent, the other index numbers of prices in China. This movement was accelerated by the departure of the United States from the gold standard in 1933. With the depression severe in all countries, there was a lessened demand for China's products. Her export and import trade both declined from 1931 to 1934, whether measured in Chinese silver currency or in gold. Meanwhile the Chinese farmer was suffering from a large decline in the price of products which he sold, accompanied by a much smaller decline in the prices which he paid for commodities and labor, and by an increasing burden of taxes and interest which were fixed in terms of money.

CHART I

PRICE OF SILVER, EXCHANGE VALUE OF CHINESE DOLLAR, AND SHANGHAI INDEX NUMBER OF EXPORT PRICES



The Flow of Silver to Shanghai

Since the World War there have been striking changes in the amount and distribution of Chinese currency. Table II and Chart II give an estimate of the volume of Chinese silver currency and bank notes at the end of each year from 1917 to 1934. As explained in a note to that table, the figures for the total monetary stock of silver in China are based on an estimate for 1930 by a leading authority, and on recorded imports and exports of silver before and after that date. No allowance has been made for loss by abrasion or for use in the arts, nor has any attempt been made to estimate the volume of copper currency in circulation. It is quite possible that the yearly totals may be considerably in error, but on the whole the table and chart should give a fairly correct idea of the general movement over the period.

China was drained of all superfluous silver during the World War, when there was a great demand for coinage

in India and in other countries. She absorbed silver on a large scale from 1918 through 1931, more than doubling her total stock. During these 14 years net imports of silver amounted to over C.S.$1,300,000,000,[3] or nearly 1,000,000,000 fine ounces, representing over 30% of the current world production. During the same period there was a fairly steady rise in the wholesale price level in China amounting to about 50%, as indicated by all the available price indexes.

The greater part of the monetary silver in China is scattered in circulation and in small hoards among the people. The only large visible stocks are those held by the Shanghai banks, shown in columns (2) and (3) of Table II. Stocks in banks elsewhere are included in column (4), but probably aggregate considerably less than those in Shanghai. It will be seen that the stocks in Shanghai showed a fairly steady growth

TABLE II

ESTIMATED VOLUME OF CHINESE CURRENCY
(In millions of Chinese Standard Dollars)
Silver Coin and Bullion

(1) End of	*Shanghai Stocks* *In Chinese Banks* (2)	*In Foreign Banks* (3)	*In Banks Elsewhere and in Circulation* (4)	*Total* (5)	*Bank Notes Issued by Principal Banks* (6)
1917		46	915	961	
1918		40	958	998	
1919		42	1,039	1,081	
1920		80	1,145	1,225	
1921	21	49	1,206	1,276	96
1922	29	42	1,267	1,338	115
1923	30	34	1,379	1,443	140
1924	48	66	1,370	1,484	151
1925	62	72	1,447	1,581	205
1926	73	74	1,517	1,664	229
1927	79	63	1,623	1,765	262
1928	103	69	1,759	1,931	309
1929	144	96	1,856	2,096	350
1930	166	96	1,938	2,200	413
1931	179	87	2,005	2,271	393
1932	253	185	1,822	2,260	430
1933	272	276	1,698	2,246	494
1934	280	55	1,651	1,986	500*

Sources: Shanghai silver stocks, 1917–1920: Samuel Montagu and Co., *Weekly Bullion Letter;* 1921–1934: Bank of China, *Financial and Commercial Monthly Bulletin*, Vol. 2, No. 4, April, 1935, p. 43.

Silver in banks elsewhere, etc.: difference between total (col. 5) and Shanghai stocks (cols. 2 and 3).

Total silver: estimate of C.S.$2,200,000,000 for 1930 from Kann, "How much Silver is there in China?", *Chinese Economic Journal*, Vol. 8, April, 1931, pp. 410–420. Figures for other years have been obtained by applying to this base the annual net import or export of silver shown in Bank of China, *Financial and Commercial Monthly Bulletin*, Vol. 2, No. 4, April, 1935, p. 48, *with no allowance for loss by abrasion or for industrial uses.*

Bank notes: Bank of China, *An Analysis of the Accounts of the Principal Chinese Banks*, 1933, p. 1.

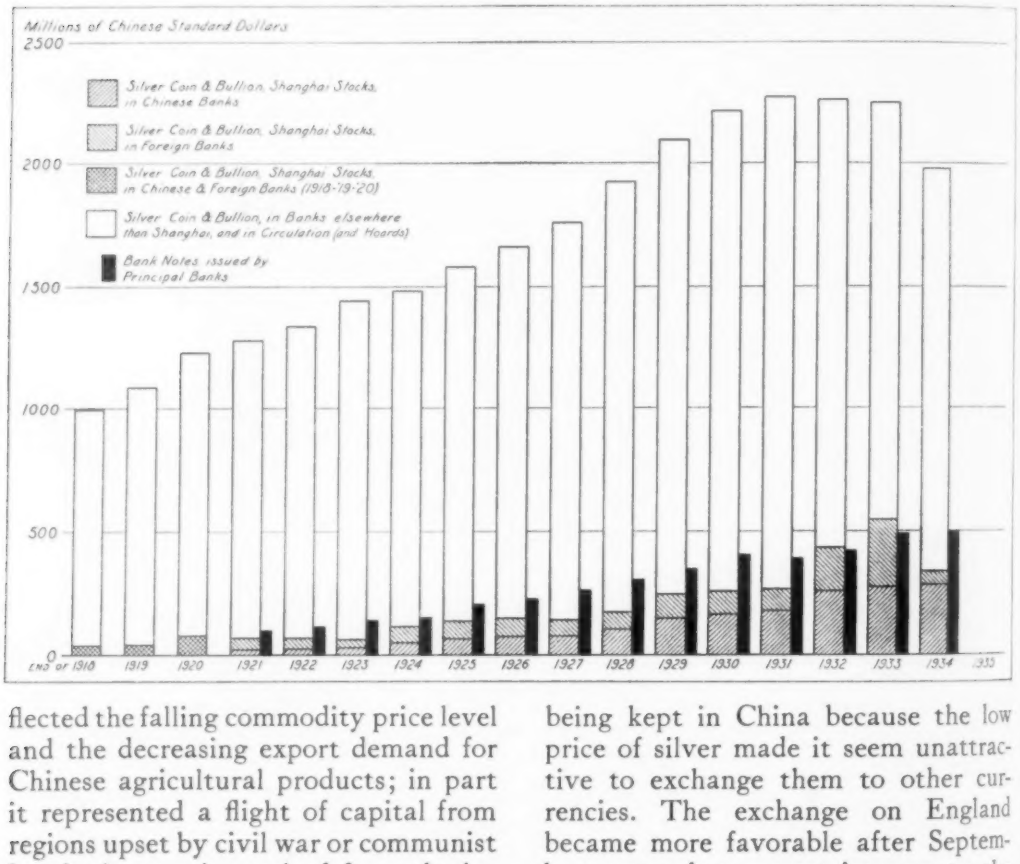
*Estimate.

[3] In this article, Chinese standard dollars will be abbreviated C.S.$.

through 1931, while silver was coming into China from abroad. In 1932 and 1933 Shanghai stocks continued to increase, although there was a small net export of silver from China. The increase in Shanghai stocks in those years represented a return of the white metal to the metropolis from outports and the interior. This return in part reflected the falling commodity price level and the decreasing export demand for Chinese agricultural products; in part it represented a flight of capital from regions upset by civil war or communist bands; in part it resulted from the increasing use of bank notes throughout the country.

CHART II

ESTIMATED VOLUME OF CHINESE CURRENCY



Much of the silver in the Chinese banks in Shanghai and in other centers was required as a reserve against bank notes, which were supposed to be covered by 60% in hard metal, although that requirement was not enforced in all cases. The greater part of the inflow in 1932 and 1933, however, accumulated in the foreign banks. Their note issues were very small, and most of the C.S.$276,000,000 which they had at the end of 1933 must have been held against deposits. Many of these deposits represented funds which were being kept in China because the low price of silver made it seem unattractive to exchange them to other currencies. The exchange on England became more favorable after September, 1931, but uncertainty as to the future of the pound probably operated to delay remittances. In 1933, when the Roosevelt Administration showed inflationary tendencies and when there was much talk of doing something for silver, there was a tendency to wait and see what would happen, in the hope of

making greater profits on the exchange of silver to other currencies.

The Shanghai Boom[4]

As has been pointed out above, Chinese trade was not reduced greatly during 1930 and 1931. In fact, although it decreased somewhat if measured in gold currencies, it maintained its 1929 level if measured in silver. Moreover, the low exchange rates, combined with increased import duties, acted to make profitable the domestic manufacture of various simple products that formerly had been imported, and so produced something of a boom in industry.

At the same time the funds held in China because of unfavorable remittance rates sought investment locally. The most promising field was Shanghai real estate, and from the middle of 1930 to the latter part of 1931 there was an active market with a large turnover. Prices rose greatly in silver currency, but did not seem high when converted to gold currencies and compared with land prices in other great cities of the world. Many building projects were undertaken, including modern hotels, apartment houses, office buildings, and residential developments. One important factor in this movement was the transfer of large funds from Bombay by the Sassoon interests, in order to avoid risks of political unrest in India and to take advantage of the favorable exchange in China.

Although the peak of the boom was passed in 1931, and the departure of Great Britain from the gold standard and the conflict with Japan were unfavorable factors, a certain amount of real estate transfers and of construction continued during 1932 and 1933 when foreign trade was declining. Other cities, to a lesser extent, also enjoyed periods of building activity, especially Nanking, where naturally much new construction was required to house Government departments and employees.

The London Agreement and the Silver Purchase Act of 1934

At the time of the World Monetary and Economic Conference in London in July, 1933, an agreement was signed by which India and Spain agreed to limit their sales of silver, China agreed to sell no silver, and five producing countries agreed to purchase enough of their own newly-mined silver to balance India's sales. The agreement really put no limitation on the Chinese Government, which had no supplies of silver to sell, and did not prevent sales of silver from other sources in China. Nevertheless, in ratifying the agreement, the Legislative Yuan was careful to include a reservation to the effect that if the price of silver should rise to an extent endangering China's trade and industries, the Chinese Government should retain the right to take whatever action it might deem necessary.

Early in 1934, when there were indications that a strong drive by silver advocates might force American legislation on the subject, Chinese bankers and others in Shanghai sent telegrams to President Roosevelt saying that China would be injured by an advance in the price of silver unaccompanied by a rise in general commodity prices, and that such an advance might necessitate an embargo or a duty on the export of silver from China. Such action would have the effect of putting China off silver and on a managed currency basis. These telegrams probably represented the majority opinion among responsible Chinese and foreign interests.

[4] A vivid and reliable account of developments in Shanghai will be found in *Fortune*, Vol. 11, No. 1, January, 1935, pp. 30–40, 99–120.

In March, 1934, the American Treasury sent Professor James Harvey Rogers of Yale University, who had been one of the President's monetary advisers, to China to report on the probable effects that American silver legislation might have. It was charged in the American Senate that this was merely a move to delay action. Chinese officials and bankers, however, welcomed the visit of Professor Rogers as an indication that some consideration would be given to China's interests. Beyond an occasional announcement by the Treasury that cablegrams were being received from him, no report of his investigations was made public.

Meanwhile the silver advocates had been having numerous conferences with the President, who at first was reported to oppose silver legislation. In the end, however, he acceded to many of the demands and recommended a compromise bill in his message to Congress of May 22, 1934. The Silver Purchase Act of 1934, approved on June 19, declared it to be the policy of the United States to increase the stock of silver with the ultimate objective of making it one-fourth of the total monetary stocks of silver and gold. It provided that the Secretary of the Treasury should purchase silver to this end

> at such times, and upon such terms and conditions as he may deem reasonable and most advantageous to the public interest.

No silver was to be purchased at a price in excess of the monetary value, $1.29 per ounce, nor was any silver situated in the continental United States on May 1, 1934, to be purchased at over 50 cents per ounce. The Act gave no authority to the Treasury to sell silver, except when the stock should exceed 25% of the total monetary stocks or when the market price of silver should exceed the monetary value.

In some of the Shanghai newspaper accounts it was not made clear that the limit of 50 cents per ounce applied only to silver in the United States on May 1. Even when it was understood that $1.29 was the real limit, there was no expectation that purchases would be carried out rapidly enough to cause a large rise in price. Silver was currently at about 45 cents per ounce; a rise to 50 cents would not have been enough to cause serious trouble in the export market, while it would have been welcomed by some importers of consumers' goods. As a result of this misunderstanding of the implications of the Silver Purchase Act, its immediate reception in Shanghai was more favorable than if the actual future developments could have been foreseen.

The Export of Silver from China

There had been small net exports of silver from China in 1932 and 1933, as indicated in column (5) of Table II. During the first few months of 1934 there was comparatively little movement of silver either way, but in June there began an export movement which soon reached large proportions. In part these exports arose from the transfer of funds abroad by individuals and corporations who decided that it was well to take their profits without further delay. Many were influenced by rumors and expectations that, if the price of silver should rise considerably, China would be forced to place restrictions on the export of the white metal or to devalue the Chinese dollar. Either course would result in a depreciation of Chinese exchange below parity with the price of silver abroad. Although the Government from time to time issued denials of any such intentions, there

was real justification for apprehension on this score.

Since the normal supply of foreign exchange arising from the export of merchandise was insufficient to provide for these unusual demands, the exchange rate fell and the banks had to ship silver and sell it in London or New York to obtain cover for the exchange which they sold. Moreover the same possibility of embargo or devaluation influenced banks and at least one large corporation to ship silver abroad for safekeeping.

Exports of silver amounted to over C.S.$12,000,000 in June, 1934, and to nearly double that in July. In August the price rose to 50 cents per ounce, and nearly C.S.$80,000,000 were exported during that month and C.S.$49,000,000 in September. These large exports increased the fear that the Government would have to take action which would depreciate the value of Chinese currency. Thus the urge to export silver before it was too late was increased, in a vicious circle.

Governmental Correspondence

On August 19, 1934, the Minister of Finance, Dr. H. H. Kung, sent a message to the President of the United States, stating that China had signed the London silver agreement

> . . . with the understanding that it was designed primarily to assure the stability of the price of silver which was thought to be menaced by the holdings of large surplus stocks on the part of the Governments of India and Spain. . . .
>
> Under the Silver Purchase Act of 1934 it would now appear that the stability of the silver price and China's interests are menaced as much as they were by the previous situation of potential sellers. In order that China may properly safeguard her currency, which has recently been flowing out of the country to a degree that is potentially alarming, China would appreciate an indication of the probable policy of the United States in the future purchase of silver.[5]

The United States Government, on September 22, 1934, replied that under the Act the Secretary of the Treasury was required to purchase silver until it made one-fourth of the total monetary stocks. The Government believed that by such an increase in the monetary use of silver it was furthering the purpose of the London Conference resolution (approved by all 66 nations, and distinct from the agreement signed by 8 nations) which recommended to all governments to substitute silver coins for low value paper currency.[6] The note concluded:

> The Government of the United States appreciates that the greatest care must be exercised in carrying out the policy. . . . It recognizes the unfortunate effects on its own currency and that of other nations which an excessively high price of silver would have. . . .
>
> In making purchases . . . the United States is desirous of avoiding any action which would hamper the action which any other Government might take relative to protecting silver and to prevent the flight or destruction thereof. Should the Government of China at any time find it necessary in order to protect its coinage to adopt a policy of discouraging the export of silver this Government will be glad to receive the views of the Chinese Government of the manner in which the purchasing program

[5] China, The Maritime Customs, *The Trade of China, 1934*, Shanghai, 1935, Vol. I, p. 6.

[6] It seems very doubtful whether many of the other nations at the conference would have considered "low value" to go as high as $1.00. In fact, the United States note admitted that the silver would be represented in circulation by silver certificates. The experience of half a century has shown that only very few actual silver dollars can be absorbed into circulation in the United States.

may be carried forward in co-ordination with such policy of the Chinese Government.[7]

This message was delayed in transmission and was not received until October 2 by Dr. Kung, who meanwhile had sent another telegram to Washington on September 23, 1934. On October 2, Dr. Kung replied to the American delayed message of September 22:

> American coöperation to prevent a further rise in the price of silver and to maintain stability as contemplated in the London agreement is particularly vital to China. In this connection it may be pointed out that the rise of silver discourages the export of commodities and thereby impairs China's purchasing power for imports. . . .
>
> With respect to discouraging the export of silver from China it may be explained that this condition results largely from artificial stimulation of the price of silver abroad and that restrictive measures would create difficulty here which the Government has striven to avoid, particularly because restrictions would probably create severe breaks in exchange detrimental to trade, and, it is feared, would aggravate the present difficulty in the local financial market.
>
> Could not the American Government for the present restrict its purchases to silver already in America to avoid further promoting the drain from China?[8]

On October 12, Secretary of State Hull replied that the silver purchase program was embodied in an act of Congress which was mandatory, as to its general objective, upon the Executive.

> . . . The ways and means to be used for carrying out this objective are left within the discretion of the Executive, but, of course, must be consistent with the achievement of that objective.
>
> This Government is desirous of so carrying out the program as to produce the general benefit that would result from the enhancement and stabilization of the price of silver, and to avoid so far as may be possible disturbances to the economy and public finances of China. Therefore, in conducting operations under the Silver Purchase Act this Government, while necessarily keeping within the general purposes of enactment, will give the closest possible attention to the possibilities of so arranging the time, the place and the quantity of its purchases as will keep in view the considerations put forward by the Chinese Government in its communication.[9]

The Chinese Export Tax on Silver

On receipt of this communication, the Chinese Government apparently decided that it could hope for nothing more than kind words from the American Government, and immediately took action of its own. Following a twenty-four hour conference with his advisers, Minister Kung on Sunday, October 14, 1934, announced a duty on the export of silver of 10% (less 2¼% in the case of silver dollars and mint bars which already had paid that amount in seigniorage), together with an equalization charge. The equalization charge was to be adjusted daily so that with the duty it would just make up for any discount of the exchange rate below parity, and so make the export of silver unprofitable.

Dr. Kung also issued the following statement:

> There is no reason to expect that forces which have been stimulating the price of silver abroad will soon cease to operate. Therefore, the Government, out of regard for the economic welfare of the people of China, have taken this measure as neces-

[7] China, The Maritime Customs, *op. cit.*, p. 7.
[8] *The New York Times*, October 15, 1934.
[9] *Ibid.*

sary to safeguard China's currency from a potentially dangerous strain on the country's reserves and to place a check upon the harsh deflationary forces which have been reflected in falling internal prices.

The measure has been determined upon after most careful consideration of various proposals for meeting the emergency, and after full consultation with leaders of business and finance. Among these proposals an embargo has most frequently been suggested. The Government considers, however, that an embargo should not be imposed. It prefers a flexible duty that will restrain the exports of silver within limits actually required by the balance of payments.[10]

For the first few days exchange dropped rapidly below parity and the equalization charge was increased correspondingly. For example, on October 18 a discount in the exchange rate below parity of 21¾% was matched by the export duty of 7¾% (for coins) plus an equalization charge of 14%. Thereafter, however, the policy was relaxed, and the equalization charge was reduced by 5% or 6%, or enough to allow for costs of exporting the white metal, so that exporters of silver could just about break even on the transaction. It apparently was the policy of the Government during the last months of 1934 to make possible legitimate exports of silver needed to settle balances.

Effects on the Export of Silver

Exports of silver fell off sharply after the imposition of the duty and equalization charge, and were at the rate of about C.S.$12,000,000 per month in November and December. The year ended with a recorded net total of C.S.$260,000,000 exported from China, of which, as may be seen in Table II, C.S.$221,000,000 represented a reduction in the stocks in foreign banks in Shanghai to somewhat below their normal levels. It would seem, therefore, that the movement must have liquidated to a very large extent the excess balances which had accumulated in these banks pending more certainty about silver prospects.

During the first six months of 1935 recorded exports of silver have been almost nil, and a certain amount has been imported under permit which allows it to be re-exported duty free. The Chinese Government came to a gentlemen's agreement with the foreign and Chinese banks by which they coöperated in avoiding exports of the white metal. Neither group of banks had much silver to spare, since the former's stocks were greatly reduced, and the latter needed most of theirs for a reserve against their note issues.

The great spread between the value of silver in China and its world value, discussed below, made the smuggling of silver out of the country highly profitable. Abnormal movements of silver from Shanghai to southern coast ports, and exports of silver from the neighboring British colony of Hongkong and from Japan recorded as far larger than their imports of silver, indicate that a considerable amount of smuggling has taken place. To prevent this, the Government has taken various measures, including the imposition of the death penalty for serious cases. Nevertheless, the very profitable illicit trade continues to some extent.

The Price of Silver and Chinese Exchange, 1934–1935

The monthly average price of silver and the average exchange value of the Chinese standard dollar in terms of U.S. currency since the beginning of 1934

[10] *Ibid.*

are shown in the lower part of Table I and at the right-hand side of Chart I. The solid line shows the price of silver in New York, and may be read in cents per ounce from the left-hand scale; or it may be taken to represent the parity of exchange of the Chinese dollar, if read from the right-hand scale, as explained in an earlier section. The broken line, which should be read from the right-hand scale, shows the actual exchange rate in Shanghai. Since the chart is drawn on a ratio grid, the percentage by which the exchange rate falls below parity is equal to the distance between the two curves, regardless of the level of the parity curve, and may be read against the scale provided.

It is evident from the chart that the exchange rate fell below parity in the summer of 1934 by about 5% or enough to balance shipping costs and make export of the white metal possible. In the autumn, the discount increased after the imposition of the duty and equalization charge. The gap gradually narrowed during the winter, but with the rapid rise of silver in the spring of 1935, the exchange rate dropped to about 25% below parity. The equalization charge was not set high enough to correspond to this discount, and exports were prevented only by the coöperation of the banks.

Other Effects

The great drain of silver from Shanghai left the financial center of China with an inadequate supply of cash upon which to base its credit structure. During the years of large silver stocks, credit had been easy to obtain and interest rates had been low, but in the latter part of 1934 interest rates rose rapidly and in addition bank loans were difficult to secure at almost any price.

The increase in the exchange value of the Chinese dollar and the potential further increase acted to lessen the value of Shanghai real estate, because there was always a tendency, especially among foreigners, to think of real estate prices in terms of American dollars or sterling. Since most banks had loaned rather heavily on real estate, they were anxious to reduce old loans and unwilling to make new ones. There were no purchasers, so that banks and individuals found themselves with frozen assets on their hands. The failures of some Chinese banks and of an American bank and associated real estate companies in the spring of 1935 were precipitated by the financial stringency. Fundamentally, however, these institutions probably had not taken adequate precautions against the adverse effects of rising exchange, which at least had been a possibility to be considered for many months before the American legislation was passed.

The Chinese Government, in accord with general banking and commercial opinion, objected to the artificial rise in silver and exchange because of the deflationary effect which it was expected to have on the Chinese price structure and on the export trade. All Chinese price index numbers had declined from about the middle of 1931 to about the middle of 1934, by an average of around 25%. Since then, however, they have not shown any decided movement in either direction, but have fluctuated in the neighborhood of the 1934 average.

The Shanghai index number of export prices, shown in Chart I, has had, if anything, a slight upward tendency since the passage of the Silver Purchase Act. With world commodity prices showing only a slight improvement during the last fifteen months, and with Chinese exchange showing a rise of

about 20% in the same period, Chinese export prices might have been expected to drop at least 10% or 15%. That they did not may be the result of special forces of demand for some Chinese commodities, which caused their world prices to rise above the general level. For example, in January, 1935, exports of peanuts and sesamum seeds to the United States increased greatly, because of the demand for oils arising from the AAA policy which had reduced the production of lard and cottonseed oil.[11] Total Chinese merchandise exports for the first six months of 1935 were nearly up to those for the same period of 1934, if measured in Chinese dollars, and exceeded them if measured in gold.

The maintenance of the price level, however, has been possible only because the Chinese dollar has been held near 40 cents, U.S. currency, or about 25% below parity with the world price of silver. If the Chinese dollar had been allowed to rise to parity, undoubtedly commodity prices would have fallen. Moreover, it must be remembered that China already had experienced a fall of prices of about 25% since 1931. The possibility of a further rise in the price of silver to, or at least toward, the goal of $1.29 per ounce, acts as a potential factor to depress the Chinese price level, and makes the future very uncertain. If world commodity prices should improve as fast as the price of silver and the Chinese exchange rise, then the Chinese price structure would be saved from further deflation, and satisfactory adjustments probably could be made gradually, although a return to higher commodity price levels would be reasonably considered desirable in the interest of the Chinese farmers.

[11] *Finance & Commerce*, Vol. 25, March 6, 1935, p. 257.

The Future of Chinese Currency

If the price of silver remains under 70 cents per ounce, as it did through the summer of 1935, an exchange rate of less than 40 cents for the Chinese dollar probably can be maintained, at the expense of a small drain of smuggled silver, and by help of the continued active coöperation of Chinese and foreign banks. If, however, the price of silver should rise further, China would have great difficulty in keeping exchange down to 40 cents, although she might be able to keep it 25% below the rising parity.

The alternatives to allowing the exchange rate to rise are to decrease the silver content of the Chinese dollar, or to abandon the silver standard completely and adopt some kind of a managed currency. To devaluate the Chinese dollar would not be so simple for China as it was for the Roosevelt Administration, at a time when it had the enthusiastic support of the greater part of the country, to induce people to give up their gold money. The Chinese have had extensive experience with depreciated currencies, both in ancient times and in the present generation, although usually on a local or provincial rather than on a national scale. Most of the silver is in the hands of the people, and the Government could not hope to seize all the profit on devaluation. It might secure part of the profit by a compromise arrangement, inducing holders of silver dollars to surrender them in exchange for an amount in notes somewhere between the face value of the old coins and the equivalent in devaluated coins. It would be difficult, moreover, to determine the amount of devaluation necessary, because of the uncertainty as to how far the price of silver might rise.

The other alternative would be to peg the Chinese dollar to gold or to some currency like sterling, or to manipulate it with the aim of keeping internal prices at a desirable level. In one sense China at present has a managed currency, but it is managed merely on a hand-to-mouth basis by the restrictions on the export of silver. With the international currency situation as it is at present, it would be difficult to determine the most desirable ends for management and the best means of carrying them out. The management of currency is a difficult and expensive art, and China hardly could raise the funds to assure ample margin for all contingencies. What started off as managed currency might easily lapse to inconvertible paper. Moreover, a managed currency would involve almost the same problems as devaluation, in replacing the existing mass of standard silver money by some kind of acceptable token money.

Summary and Conclusions

China escaped the effects of the first two years of the world depression, because the price of silver fell more rapidly than did world commodity prices, and thus gave her the benefits of mild inflation with a gently rising price level. Since then, the depreciation of other currencies and American manipulation have caused the price of silver to rise more rapidly than world commodity prices, so that the Chinese price level has fallen about 25%; at the same time, world demand for her products has declined greatly. As a result, she now is suffering from all the evils of deflation, combined with uncertainty as to the future of her monetary structure.

To some extent China's troubles are an unavoidable result of the world depression, and will tend to be alleviated by any recovery which takes place elsewhere. Internal political and economic weaknesses also handicap her progress. Her monetary problems, however, have been accentuated by a professedly friendly nation, which has taken action embarrassing to China, merely for the sake of satisfying certain economically insignificant but politically important interests at home. There is little that the Chinese Government can do, except to continue its present restrictions, and to hope that the American Administration will resist all further pressure which tries to force it to a more rapid execution of the Silver Purchase Act of 1934.

SOME ASPECTS OF PUBLIC UTILITY MANAGEMENT AND REGULATION

BY C. O. RUGGLES

IN A previous article certain aspects of public utility rate making were examined.[1] Among the more important points discussed in that article were the significance of the popular demand for greater flexibility and simplicity in utility rates; the undue delay in rate changes because of almost interminable controversies over valuation; the difficulties presented in the extension of power plants and in the pricing of power, especially for the industrial competitive market in periods of boom and depression; some economic fallacies in utility rate making; and, finally, the need for improvement in regulation itself.

In this article consideration will be given to problems of public utility management and regulation. Attention will be directed to (1) the rôle of centralized holding company control and operating company management; (2) the problem of developing regulatory yardsticks, and efficiency and inefficiency in management; (3) the importance of close scrutiny of operating costs as compared with meticulous valuations of public utility property; (4) the relationship of fair return to movements of the business cycle and to the character of public utility management; (5) the possible improvement in regulation itself and the need for greater emphasis upon the economic and business issues which are wholly independent of the form of ownership and operation.

[1] "Some Aspects of Public Utility Rate Making," XIII HARVARD BUSINESS REVIEW 4, Summer, 1935, pp. 417–434.

Centralized Holding Company Control of Operating Utilities

With regard to public utility management, the attention of the public is now focused upon the abuses of holding company control. It is not our present purpose to discuss this very broad problem, but to confine ourselves to the less spectacular aspects of the relationship of the holding company to operating utilities that also deserve serious consideration. Careful students of public utilities have realized for some time that satisfactory results could not be obtained through the management of far-flung operating companies by highly centralized, complex intercorporate organizations. It is a regrettable fact that the managements of some of these superholding companies have had very little real interest in the prosaic business of furnishing public utility service. They have instead been primarily interested in the issue and sale of securities; and, for that reason, they have sought a form of organization which made it difficult, if not impossible, to check their accounts or subject their management of operating companies to proper supervision and control. With regard to the latter point, the writer had occasion to point out in 1924 that the reason so many holding companies were then being organized was in order to dodge state regulation.[2] With regard to intercorporate and holding company

[2] "Problems in the Development of a Superpower System," II HARVARD BUSINESS REVIEW 2, January, 1924, pp. 160–173.

accounting the following statements made about the same time may also be repeated:

> . . . As interutility relationships become more complex, the public interest demands that the accounts between parent or holding companies and local distributing companies be made in an honest and intelligible manner. If the transactions between parent and subsidiary companies and valuation accounts are not made a wide-open book, it may become necessary for utility accounts to be rigidly inspected at frequent intervals or possibly kept by government employees themselves.
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> There would be nothing in such a plan that would interfere with efficiency in management. To use the language of Mr. Justice Hughes in the Minnesota rate cases: "The appraisement is of an instrument of public service, as property, not of the skill of the users." Indeed, if there were less opportunity to make a profit through the working out of certain valuations or through financial manipulation of accounts, there would need to be more attention given to possible efficiency and economy in operation.[3]

There was more excuse for centralized control of operating utility companies through a holding company—especially in the field of light and power—30 years ago than there is today. When light and power plants were just being installed in many communities, there was no market whatever for such securities. Electrical manufacturers soon found that if they were to have a market for electrical equipment, it would be necessary to accept in payment municipal securities in the case of municipal plants and securities of private companies in the case of privately owned and operated utilities. In view of the fact that there were a generation ago so many very small plants, a holding company could then render valuable financial engineering and management services that could not be done so effectively or economically by the small plants themselves. In 1902, the year of the first electrical census, there were 2,805 private power companies and 815 municipal establishments. The private companies reached a maximum in 1917 when there were 6,542 establishments. According to the Census of 1932, there were only 1,627 private utility establishments. The high mark for the number of municipal plants occurred in 1922 when there were 2,581. In 1932 there were but 1,802.[4] Obviously the same economic forces in both groups caused the small plants to disappear because larger generating units called for wider markets, and, with the use of alternating current and long distance transmission lines, these large units could serve a number of communities.[5]

During the time that the physical plants of the light and power companies were being built, the problem of marketing utility service was given very little attention. Indeed, these utilities for some time had a sellers' market. They found that the markets were growing as fast as their plants could be expanded to meet that demand. It was precisely this rapid growth in demand for electricity, for example, that offered excellent opportunities to pioneers and promoters to organize holding companies, and to sell securities on a grand scale based on the future possibilities and potentialities of wider

[3] Ruggles, C. O., "Problems of Public Utility Rate Regulation and Fair Return," *Journal of Political Economy*, October, 1924, pp. 543–566.

[4] U. S. Census of Electrical Industries, 1932, p. 4.

[5] The increase in the size of power plants is also reflected in the Federal Census. See, for example, data on prime movers in the Census for 1932, p. 15.

and still wider expansion of the light and power business. The high finance which was characteristic of some of our early American railways was repeated in the light and power industry. As a matter of fact, there appeared to be even greater possibilities in the development of far-flung superpower systems and in capitalizing the possible future income because we were, to an increasing degree, giving certificates of public convenience and necessity to but one power company in a community. The promoters of some of these far-flung highly centralized holding companies were primarily interested, then, not in a showing of earnings so much as of rapid growth; a growth, moreover, not so much of expanding markets as of the increasing number of companies within the holding company control. Often these subsidiary companies were bought at prices which had no sound economic justification. But in spite of the abuses of the holding companies, there is no blinking the fact that they did bring about a more rapid development of power systems than would have occurred without the stimulation of the promoters in this field.

But it seems clear that intensive development of the market for electricity is now the primary need. In view of this fact, what is needed at present is decentralization of management and much close range analysis of marketing problems by able executives in complete control of the policies of operating companies. Market development requires (1) funds and (2) time. With a highly centralized holding company organization interested primarily in the securing of profits from the sale of securities or through various intercorporate transactions with subsidiaries, there is a strong temptation to syphon off revenue from an operating company that ought to be used in market development. Moreover, a holding company interested primarily in finance can usually operate more successfully on a short-time cycle; whereas the development of the market for public utility service calls for operations planned over a series of years, and indeed may mean extremely lean earnings during the early years. A holding company may not be able to wait for such long-range results. A very slight decrease in the earnings of operating subsidiaries under its control may mean a striking decrease in the earnings of the securities of a highly pyramided holding company. Unfortunately some of the superholding companies have been too much interested in finance to allow sufficient funds to be used in the long-range and intensive development of public utility markets.

It is evident that the greatly increased size of operating companies will enable many of them to raise their own funds and to have on their own payroll most of the experts that they will need. The relative position of strong operating companies and of some of the ill-advised holding companies has been seen in the fact that after some of the holding company organizations became bankrupt the price of stock of the subsidiary operating companies advanced on the theory that the "milking machine" had been disconnected.

However, there is so much feeling about the holding companies at the present time that it is not generally recognized that in spite of the shortcomings and abuses of these companies in the past, there are legitimate functions of such organizations which are in the interest of the public itself.

The fundamental principles of economics involved are even independent of the form of ownership and operation of the utilities. If we were to have complete government ownership and operation of public utilities, it would be to the interest of the public to utilize the holding company principle through some sort of a central organization of municipalities whereby competent talent in such fields as engineering, accounting, and business could be made available to cities too small to afford to carry such experts on their own payroll. The local manager of a small municipal plant, though thoroughly competent to cope with day-to-day routine matters of operation, could not be expected to make wise decisions on questions which would arise only at long intervals and would involve a wide knowledge of the advance in the arts. Such service, which might not involve more than a few days on the part of one thoroughly aware of trends and developments, might, in the engineering field alone, save the municipality vast sums of money. The same may be said with regard to the savings which can be effected by a central company in serving small private utility plants. Merely because the parent company has brought about too much centralization in management, and has in some instances acted like a heartless step-parent, is no reason why the holding company as a device in public utility management should be entirely eliminated. But the time is long overdue when all services rendered to smaller companies by a central organization (when such services are economically justified) should be very carefully checked.[6] Obviously this procedure in turn calls for effective regulation.

Regulatory Yardsticks and Efficiency in Management

One objective sought by supporters of an automatic adjustment of rates and of rate of return discussed in the preceding article is the encouragement of efficiency and the minimizing of inefficiency in public utility management. This end is something the public should spare no pains to secure, whether the utilities are private corporations or publicly owned and operated. The private companies have no inherent right to furnish public utility service. The public has the right to determine that question for itself, and it obviously should adopt whatever form of operation will give it the best results. But the public should not fool itself in reaching its conclusions. Publicly owned and operated utilities should be held as definitely responsible for results as are those that are privately owned and operated. Only about one-third of our state commissions now have any control over municipal utilities, and these utilities are constantly trying to detour around wholesome requirements set up by the state commissions.

All devices which will enable the public to detect and penalize inefficiency and to reward efficiency should be utilized to the utmost. The so-called Washington Plan of rate making, which was given some attention in the previous article, offers something along this line; but the public will be disappointed if it expects its adoption to attain the results contemplated regardless of other important economic changes which may accentuate or

[6] Ruggles, C. O., "Regulation of Electric Light and Power Utilities," *Proceedings of the 41st Annual Meeting of the American Economic Association*, December, 1928, pp. 179–196.

completely neutralize the effects of "automatic" control of both rates and rate of return.

There is no single economic gadget which can be used to check inefficiency in management. It is a very difficult and complex problem at best to appraise the character of public utility management. But as a matter of fact, we have not made very much attempt to do it.[7] We have hesitated to do so because we have had doubts as to the extent to which regulation should interfere with management. Even when our public utility commissions have ventured into this realm they have frequently been checked by the courts. The Court of Appeals of New York, soon after that state had undertaken comprehensive commission regulation of public utilities, said: "We do not think the legislation alluded to was designed to make the commissioners the financial managers of the corporation or that it empowered them to substitute their judgment for that of the directors or stockholders of the corporation."[8] The Illinois Supreme Court has likewise maintained that a commission cannot substitute its discretion for that of the officers with respect to matters of business judgment.[9] The list of court decisions to the same effect could be greatly extended. The Supreme Court of the United States in the Southwestern Bell Telephone case, in 1923, said:

> . . . It must never be forgotten that while the state may regulate with a view to enforcing reasonable rates and charges, it is not the owner of the property of public utility companies and is not clothed with the general power of management incident to ownership. . . .[10]

But it is of much interest to see that about 10 years later the Supreme Court stated definitely that the burden of proof was on the utility to show that intercorporate transactions were to the interest of the public.[11]

In discussing some phases of public utility management and regulation about 10 years ago, the writer made the following observations:

> The attempt on the part of commissions to gauge the rate of return which a public utility should have by the character of its service or the efficiency of its management is viewed by some with much apprehension. It is said that such a policy is an unwarranted interference with management, and that such attempts, therefore, are likely to do much more harm than good. It is contended that the management of our public utilities must not be hampered if it is to attain the best results; that the interference by regulating bodies with actual operation of utilities will stifle initiative and retard many improvements in the public utility field that might otherwise be realized.
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> . . . . . .
>
> While there is truth in the contention that it would be a mistake to substitute the judgment of public utility commissioners for that of boards of directors and active managers of public utility companies, it by no means follows that commissions may not take cognizance of the character of the service rendered by a utility or of inefficiency in its management.
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> . . . . . .

[7] "Rate regulation of both railroads and other public utilities has been more generally applied and more readily accepted as proper than has regulation looking toward supervision of either service or management." Ruggles, C. O., "Railway Service and Regulation," *Quarterly Journal of Economics*, November, 1918, pp. 129–179.

[8] *People* v. *Stevens*, 197 N.Y. 1, 90 N.E. 60 (1909).

[9] *State P.U. Commission ex rel. Springfield* v. *Springfield Gas & Electric Co.*, 291 Ill. 209, 125 N.E. 891, PUR 1920C, 640.

[10] *State of Missouri, ex rel. Southwestern Bell Telephone Co.* v. *Public Service Commission of Missouri*, 262 U.S. 276; 43 Sup. Ct. 544, 577 (1923).

[11] *Lindheimer et al.* v. *Illinois Bell Telephone Co.*, 292 U.S. 151, 54 Sup. Ct. 658 (1934).

Expensive mistakes in utility management which reasonable intelligence and efficiency could have eliminated should not be charged against the public. Poor coal might be a legitimate excuse for poor or expensive service on the part of a gas company during the years of a war or under certain circumstances at other times, but a chronic substandard and expensive service should not be excused on that account. It might cost an electrical utility in normal times, 18 cents per kw.-hr. to generate electricity, and yet the service might be so intermittent that it would be almost worthless. In other words, there is no reason why the public should be expected to shoulder the burden merely because it might cost a public utility a very high price to furnish a service. If routine matters are to be left to the discretion and judgment of utility management, it must in turn be held responsible for results. Also the high cost of service may be due to the fact that it is applying out-of-date methods to antiquated equipment, and has failed to keep step with the progress of the arts. The public cannot be expected to underwrite negligent and shiftless management which results in inefficiency and waste and in turn may lead to gross overcapitalization, including excessive bond issues. A fair return should not be allowed on any such basis. As Mr. Justice Hughes maintained in the Minnesota rate case, the realization of the benefits of property must always depend in large degree on the ability and sagacity of those who employ it.[12]

Importance of Close Scrutiny of Operating Costs

The timidity on the part of the public in its failure to give adequate attention to the significance of regulatory yardsticks, by which some estimate could be made of the efficiency and integrity of management, has been largely responsible for the hunting of big game by the holding companies in the happy hunting grounds of non-interference with management. It has also been in part responsible for the fact that we have gone to seed on the matter of valuation, and have failed to scrutinize many items in the operating expenses of the utilities that are of far more importance to the public than the advantage it would gain by securing the method of valuation most favorable at any given time to the interest of utility consumers. Mr. Chief Justice Hughes pointed out in the Illinois Bell Telephone case that a difference of $1,500,000 charged to operating expenses was equal to 6% on $25,000,000 in the rate base.[13] If even a small fraction of the money that has been squandered both by the public utilities and by the public in attempting to establish valuations that have been of very little practicable value when found, had been spent in checking and thoroughly examining the operating expenses of the utilities, it would have had a very wholesome effect upon the character of public utility management. One can consistently urge that regulation should not supplant management and still maintain that management should be held strictly accountable for results. *There are great possibilities in this area of regulation, whether the utilities are publicly or privately owned and operated.* And, while the public utility commissions and the courts have in general frowned upon the interference of regulation with management, they have also recognized in specific instances the importance of resorting to certain usable regulatory yardsticks to penalize

[12] "Problems of Public Utility Rate Regulation and Fair Return," *Journal of Political Economy*, October, 1924, pp. 543, 551, 552, 554.

[13] *Lindheimer et al.* v. *Illinois Bell Telephone Co.*, 292 U.S. 151, 54 Sup. Ct. 658, 664 (1934).

inefficiency and reward efficiency in management.[14]

About 1920, several distributing natural gas companies in Kansas applied to the Kansas Court of Industrial Relations for an increase in rates.[15] In denying the petition, the Court of Industrial Relations adopted as a basis of leakage allowance 200,000 cu. ft. per annum per mile of 3-inch main equivalent, and directed the distributing companies to take immediate steps to put their lines in condition to reduce the leakage to that standard.[16] The law establishing the Public Utilities Commission in 1911 and the amended law under which the Kansas Court of Industrial Relations was established contained some provisions of interest in this connection. In Section 10 it was provided that "every common carrier and public utility governed by the provisions of this act shall be required to furnish *reasonably efficient* service, etc."; also (section 13) that "if upon any investigation it shall be found that any regulation, measurement, *practice, act of service*, complained of is unjust, unreasonable, *unreasonably inefficient*, etc.", the commission, and later the Industrial Court, should "have power to substitute therefor such other regulations, measurements, practices, service or acts . . . as shall be just and reasonable."[17]

The natural gas distributing companies took the position that the Court of Industrial Relations in setting up a standard of leakage was invading the right of the companies to conduct and manage their own affairs. They cited a Federal court case to the effect that a commission was not authorized to make orders "which would constitute an invasion of the right of the company to conduct and manage its own affairs subject to a proper exercise of the power of regulation."[18] But setting standards of leakage did not seem to the court in this case a violation of the qualifying clause "subject to a proper exercise of the power of regulation" in the decision just quoted. The action of the Court of Industrial Relations was "therefore not an invasion of the rights of the distributing companies." With regard to the regulatory yardstick on leakage the court stated that it considered it a reasonable one and that there was ample evidence that the distributing companies were negligent in this matter.

The Court of Industrial Relations had taken the position that there should be no increase in rates so long as the distributing companies were failing to realize substantial economies through reduction of the leakage in their system. But the court did not share this view. With regard to the relationship between leakage and rates in this particular case, the court stated that if during the preceding seven years the distributing companies had not kept their plants up to the standard of leakage "tacitly authorized," and if earnings which might have been devoted to such purpose had been diverted, then the companies

[14] "Problems of Public Utility Rate Regulation and Fair Return," *Journal of Political Economy*, October, 1924, pp. 543–566, especially pp. 551–558.

[15] The Kansas Public Utilities Commission was abolished in 1920 and the Court of Industrial Relations given jurisdiction over public utilities. Laws of 1920, Ch. 238.

[16] PUR 1921A, 807.

[17] Section 6 of the Law of 1920, Ch. 238, provided that "public utilities and common carriers herein specified shall be operated with *reasonable* continuity and *efficiency*, etc." The italicized words in the quotations from the law are those of the United States District Court in *Landon et al.* v. *Court of Industrial Relations of State of Kansas*, 269 Fed. 433, 439 (1920); PUR 1921A, 807, 811–814.

[18] *Kansas City C. C. and St. J. R. Co.* v. *Barker*, 242 Fed. 310 (1915); PUR 1917F, 456.

should be penalized for their negligence; and especially should they be penalized if funds earmarked for the reduction of leakage had not been so used. But to go much beyond this and "throw upon the distributing companies the whole burden of bringing their plants up to the new standard ordered" was in the opinion of the court unreasonable.

And while the court believed that the utilities in this case had been inefficient and negligent it maintained that the regulatory body also must share responsibility for the neglect in failing to set up proper standards of leakage earlier. In other words, the court believed that the problem of bringing the plants of the distributing companies up to the leakage standard ordered by the commission was not "so much a matter of deferred maintenance as a matter of deferred standard of maintenance."

In a case involving payments made to an affiliated utility and expenses included in a rate case, the West Virginia Public Service Commission said that while it understood that a commission is not the manager of utilities, it did believe it to be within its powers "to scrutinize carefully extravagant expenditures of this nature."[19]

In an important case which was carried to the United States Supreme Court, the Oklahoma Corporation Commission ordered a natural gas utility to make refunds of from 8% to 25% to consumers because of the inferiority of service. In the appeal to the United States Supreme Court the gas company contended that both the Oklahoma commission and the Oklahoma Supreme Court penalized it "for failing to supply gas which nature had not produced." But the United States Supreme Court, in upholding the Oklahoma commission and the Oklahoma Supreme Court found that the gas company was being penalized because of its failure to transport the gas "under sufficient pressure to render efficient service."[20]

There are many aspects of management over which it could not be expected that a commission would ordinarily have control but nevertheless certainly could and should be taken into consideration in determining rates or a rate of return. The Massachusetts commission has said that it is not within its jurisdiction to determine whether a company was extravagant and improvident because it purchased coal without competitive bids; that in seeking to obtain a monopoly of lighting and power, it had entered into improvident contracts; and that it had incurred large expenses for new business and advertising. But the Massachusetts commission pointed out that all of these matters could and should be taken into consideration in determining rates.[21]

If our regulation of public utilities had been focused upon a careful analysis of the operating costs of the public utilities during the past 20 years, efficiency in management would have been stimulated, and it would by no means have been so easy for some of the holding companies to siphon off the earnings from the operating companies under their control. Such careful scrutiny of public utility management would have shown the need for some

[19] PUR 1928B, 20, 77.

[20] *Oklahoma Natural Gas Co.* v. *Oklahoma*, 258 U.S. 234, 238; 42 Sup. Ct. 287 (1922); PUR 1922C, 522. The Oklahoma Supreme Court decision is 78 Oklahoma 5 (1920), PUR 1920D, 282.

[21] *Consumers* v. *Edison Electric Illuminating Co.*, PUR 1926A, 525, 532.

Federal regulation, even 10 or 15 years ago, to control some of the activities which have been carried on in a no man's land well beyond the jurisdiction of the states.[22]

Anyone at all familiar with the long drawn-out and expensive valuation proceedings before both the commissions and the courts knows that these "law-suits" have absorbed an unwarranted amount of the time of high grade talent, special experts of all sorts, including executive officers. If this same talent had been focused on how to make savings in operating expenses instead of increasing them in trying to find ways and means of padding valuations, the public could have had better service and at lower rates, and the utilities themselves could have had better long-range financial results.

Relation of Fair Return to Business Cycles and Character of Management

It was indicated in the previous article that recent interest in automatic rate control is to bring about fair rates and fair return without so much delay as has been occasioned by the "legal-valuation" type of regulation. But here again we must not rely upon a patent medicine cure of "automatic adjustment" by formulae.

As the United States Supreme Court has well said:

> . . . What annual rate will constitute just compensation depends upon many circumstances and must be determined by the exercise of a fair and enlightened judgment, having regard to all relevant facts.[23]

[22] "Problems in the Development of a Superpower System," II HARVARD BUSINESS REVIEW 2, January, 1924, pp. 160–173.

It has been well settled law for some time that a public service corporation has no constitutional right to profits such as may be realized in competitive industry. The position of the United States Supreme Court on this matter has been stated as follows:

> . . . A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.[24]

It is not generally appreciated that determining what is a fair return for light and power utilities is a much more difficult problem than it was before these utilities began to serve the wholesale industrial market. If the business of these utilities had been confined to the comparatively stable domestic market, there would have been more hope that we could have calculated more or less automatically a fair return. But even with a static market, other economic changes would command attention and no sliding scale of relationship of rates to return could possibly forecast and allow for these factors.

[23] *Bluefield Water Works & Improv. Co.* v. *Public Service Commission*, 262 U.S. 679, 43 Sup. Ct. 675, 679 (1923).

[24] *Ibid*, p. 679.

Evidence was presented before the Illinois Commerce Commission in 1921 which showed that 20 representative public service corporations had paid an average interest rate of 5.87% on securities issued by them for the years 1912–1913. Partly as a result of the Great War, the same 20 companies paid an average rate of 8.71% on their security issues for the years 1918–1919. This meant an increase in the cost of capital alone of nearly 50%.[25] It was pointed out in the preceding article[26] that it is during just such periods as that of the Great War, with sharply advancing prices and a marked boom in business, that big industrial customers make such demands upon power companies as to entail the raising of large amounts of capital for plant expansion to serve this wholesale market. The effect of the business cycle then must be taken into consideration in fixing a fair return for those utilities which serve the industrial market to an appreciable extent.

It seems clear, in view of the element of uncertainty which now confronts a power utility that has a large wholesale market, that it will be necessary *to consider not a single year but a period of years in calculating what constitutes a fair rate of return.* Surely this is a task that can be done not by formulae but only, to use the Supreme Court's own words, "by the exercise of a fair and enlightened judgment, having regard to all relevant facts." In view of the fact that power companies are serving the industrial market to an increasing extent they are likely to have fat and lean years which our regulatory authorities and the courts ought to take into consideration in regulating the rate of return. It was pointed out in the previous article that the power companies should advance demand charges and energy rates to wholesale customers during periods of business boom, so that they will be able to make the necessary reductions in both of these charges as prices fall, without serious financial consequences.

It cannot be too strongly emphasized, as has been pointed out previously, that *many of the problems of public utility rate making and management are in essence economic problems, and should therefore be considered entirely apart from the form of ownership and operation.* A municipal plant with unsound rate schedules will experience the same lack of development of its potential market as if it were privately owned and operated. The same may be said with reference to the consequences of a lack of managerial ability.

It seems clear that it is to the public's own interest to attempt to reward efficiency in management by allowing a premium for it through a more liberal rate of return. Likewise, if we hope to minimize inefficiency in management we must have a competent regulatory body which can detect it and reduce the rate of return allowed until the situation has been improved. Nor is it any real argument against such a plan to say that it will be extremely difficult, if not almost impossible, to determine in some instances when the results from utility operation are to be attributed to management or to wholly fortuitous circumstances. It may be readily admitted that the results will be only approximate even after we have devel-

[25] *Re* Metropolitan West Side Elevated Railroad Company, PUR 1921B, 229, 280, 281.

[26] XIII HARVARD BUSINESS REVIEW 4, Summer, 1935, pp. 417–434.

oped some satisfactory regulatory yardsticks. Moreover, we should not fool ourselves about the length of time that it will take to secure worth while results. It will probably take at least one generation to develop the most workable standards by which efficiency or inefficiency may be fairly measured, but there seems to be no sound reason why we should not make a beginning, and many worth while results can be secured within a comparatively short time. The mere inauguration of a type of regulation which focused the spotlight on the operating expenses of the utilities would have a wholesome effect at once.

Improvement in Regulation Itself

In view of the fact, therefore, that *we cannot eliminate many of the difficult economic problems of rate making and management by a mere shift in ownership*, it becomes a matter of vital importance that our regulatory bodies are effective. This, in turn, means that we must have both Federal and state control if jurisdiction over the utilities is to be complete. In every case, the regulatory authority ought to secure as complete and close-range a view as possible; hence the Federal control of utilities other than carriers will probably be more intelligent and effective if it is set up on a regional rather than on a centralized basis.[27] A page from the history of public utility management itself may be of value in working out a well balanced system of regulation. It is now evident that the holding companies, in the light and power field, developed centralized management over widely scattered operating utilities to a point that in some instances has been highly undesirable. It has been pointed out that at one stage of the development of public utility systems, when physical expansion was under way and when many small utilities were unable to raise funds, there was more reason for centralization of management in holding companies than exists now, when the main job of the utilities is the intensive development of the market for utility service. Such a program calls for a marked decentralization in public utility management. If we are to have a constructive type of regulation, that can be of the greatest service both to the public and to the public utilities in furthering the intensive development of the market for public utility service, it must be a close-range type of regulation. Moreover, the time is long overdue when we should shift from the undue emphasis upon the utility's legal rights under the 14th Amendment to a type of regulation which will attempt to gauge the rate of return, with recognition of the effects of the business cycle and, in part, on the basis of efficiency or inefficiency in management. If this is done as it should be—through an intelligent coöperation between regulation and management (not high finance)—the legal rights of the utilities under the Constitution will not require such lengthy consideration as they have in the past.

If both state and Federal commissions are to cope successfully with the economic and business problems of utility control, they must have *adequate*

[27] The writer had occasion to suggest in 1928 that Federal regional commissions probably ought to be created but it was pointed out that the subject of public utility regulation deserved some such careful study as was given to the regulation of banking before the passage of the Federal Reserve Act. See "Regulation of Electric Light and Power Utilities," *Proceedings of the 41st Annual Meeting of the American Economic Association*, December, 1928, pp. 179–196.

staffs of competent persons who can look forward to a professional career in such work. It is probable that our commissioners themselves will, for some time to come, change as political parties change, but if we have able expert staffs serving these commissions, we can still secure fairly effective regulation in spite of the shift in the personnel of the commissioners. If we are to have regulation that is worthy of the name, we must face the fact that we must place our commissions upon such a financial basis that they will not be handicapped during depression periods when they will have an extra burden to carry. Very few of our commissions are financed at the present time as they should be. During the past five years, many of them have lost very able staff experts through the sheer lack of funds to keep them on the payroll. The public by its own shortsightedness is responsible for this condition. Doubtless the creation of Federal regional commissions would stimulate the states to improve the character of the staffs of the state commissions. It seems clear that the states have a real opportunity to continue to do the major work of the regulation of public utilities other than carriers, provided they are equipped so that they deserve to do it. We have carried our fears of bureaucracy to the point that we have not adequately equipped our state commissions to secure intelligent and effective regulation. There is no denying the fact that some of our regulation has been shortsighted, quite ineffective, and entirely too negative in character. Hence, it has often not been in the interest of either the public utilities or the public. But the risk from unwise and even dishonest management without regulation is even a greater hazard.

There was no justification for the sales of public utility securities that were made, in the years preceding the panic of 1929, by some superholding companies which were free from regulation. These companies had a real opportunity to demonstrate what uncontrolled management could really do. They were surely not doing a service to the operating utilities under their control by such financing as many of them launched. Writing up the value of operating properties and then selling securities based upon such "values" positively interfered with good management, and especially with the proper development of public utility markets.

Summary and Conclusion

In summary and conclusion it may be said that the popular demand for greater flexibility in public utility rates is sound. So long as public utilities serve a highly dynamic world, their rates must be adjusted to conform with fundamental changes in economic conditions. This conclusion, in turn, means that long delays involved in tedious and prolonged valuations defeat any equitable adjustment of rates within a reasonable time. As was indicated in the previous article, there would appear to be some promise in the use of properly constructed index numbers in calculating a rate base which will eventually probably be accepted by the courts. The time element is vital in checking the rate base which is in turn used to bring about a revision in public utility rates. If there is "horse-play" on the part of either the public utilities or the public in stalling along with long drawn-out valuations, then rate changes are defeated. If the economic conditions have completely changed during the many years over which the

valuation law suits are dragged out, the revision of the rates may be entirely meaningless.

The long depression ought to have made it clear that the problem of determining a fair rate of return for public utilities involves consideration of the effects of the business cycle and of the efficiency or inefficiency of public utility management. Clearly business booms and depressions, while beyond the control of public utility management, must be taken into consideration in making extension of plant and in rate making. If a power company's industrial market expands too rapidly in relation to the other parts of its market, the company runs the risk of having idle plant on its hands when the business boom subsides. And while no automatic formulae can be used in the solution of such a problem, regulatory commissions and public utility management ought to give serious consideration to possible methods of holding such expansion in check by the pricing policy of power companies, especially for industrial power, and in providing reserves during boom years against the inevitable loss of industrial business during a depression. The regulatory authorities themselves must accept some responsibility in adjusting public utility rates so as to recognize the significance of changes in economic conditions and in encouraging efficiency and penalizing inefficiency in public utility management.

The demand of the public for greater simplicity in public utility rates does not recognize the fact that to some extent great varieties of rate schedules which have come into existence simply reflect the economic factors involved in the development of the various segments of the market for public utility service. This does not mean that rates are not sometimes unnecessarily complex; it does mean that we should have a great variety of public utility rates if these rates are to be economically sound. In a previous article it was pointed out that a power company cannot always sell electricity to an industrial customer because the latter may have such substantial needs for steam that it will have its power as a by-product. For precisely the same reason, the public, in the development of flood control and irrigation projects, may have power as a by-product and under such circumstances private power companies cannot possibly compete in pricing electricity alone. The public plant in such a case does not furnish a worth while yardstick on the cost of electricity simply because electrical energy in that instance is a by-product. There will always be a large segment of the industrial market for power that the public utility cannot possibly supply because here again electricity is a by-product of other industrial needs, and the rates of the power company must be made in accordance with the competitive factors of the industrial market. This means that it is sometimes impossible for the public utility to compete with by-product industrial power.

Complex intercorporate organizations which are primarily interested in the sale of public utility securities ought to be displaced by integrated systems of such a size that the fullest possible economies may be realized without the evil effects of highly centralized control. With small operating utilities there is still need for some sort of central organization which can render engineering, management and other services to such operating units, whether they are privately or publicly owned and operated. This can be ac-

complished by simple and direct relationships between central organizations and operating companies. Moreover, there should be effective control of these relationships by the regulatory authorities.

We ought to face squarely and without further delay the problem of developing regulatory yardsticks by which efficiency and integrity of public utility management can be checked and results appraised. From a mathematical point of view, it is probably more important to the public to have constant and careful checking of operating costs than it is to spend so much time and money on valuations. The wholesome effect upon public utility management of checking operating costs is something which the public should not overlook. This statement does not mean that regulation should be substituted for management, but it does mean that public utility management should be held responsible for results. Even from the public utility's point of view such a plan is desirable. Only through such careful examination and supervision of the public utility's business can a fair rate of return take into consideration the vital effect of the business cycle, and the efficiency or inefficiency in management.

The foregoing improvements are obviously dependent upon marked improvement in public utility regulation itself. The emergency conditions resulting from the depression have brought about a demand for strong Federal control of public utilities. It has been clear to students of these industries for more than a decade that there was a real need for some Federal control of those utilities, the activities of which had been carried well into the twilight zone between state and Federal jurisdiction.[28] But this need does not mean that we should have, through the agency of the Federal Government, a highly centralized control of public utilities other than carriers. Just as a serious mistake has been made in too much centralization in the field of public utility management, so is there danger of too much centralization in public utility regulation by the Federal Government. Highly centralized Federal control cannot be effective in regulating utilities whose business is primarily local in character. Federal control can probably be most effective if a number of Federal regional commissions are provided to regulate the activities of the public utilities which are clearly beyond the jurisdiction of the states. The Federal Power Commission could confine its attention only to cases appealed to it from the decisions of the Federal regional commissions. Such a plan would bring Federal control closer to the people through the regional commissions, and would enable the focus of local intelligence upon the issues involved. If we are to have much decentralization in public utility management we will doubtless secure the best results in regulation through the combination of improved state commissions and such Federal regional commissions as may prove to be necessary.

Finally, as a necessary foundation for any lasting progress, either in public utility management or in public utility regulation, there must be a better understanding of the economic and business problems of public utilities. The early city councils and the

[28] "Problems in the Development of a Superpower System," II HARVARD BUSINESS REVIEW 2, January 1924, pp. 160–173.

early utility managers, for example, in trying to fix definite public utility rates for very long periods of time, were apparently not aware of the fact that the public service industries are vitally affected by changing economic conditions, and that such rates are economically unsound. The city council has now about passed out of the picture as a rate making body. Those who urge municipal home rule on this score apparently do not appreciate the significance of the changes brought about by the advance in the arts. However, there are some aspects of public utility regulation in which city councils can have a part, if their efforts are properly coördinated with the regulation of a state commission. But even the states are unable to regulate all of the activities of our large and far-flung utility systems. We will not turn the hands of the clock backward, and insist that the business of our utilities be confined to a restricted economic area, any more than we will give up our high-powered motor cars for animal drawn vehicles. In other words, the regulatory pattern must be determined by the logical economic and business developments which the advance in the arts has brought about.

But state and Federal regional commissions will be unable to cope with the present-day problems of public utility regulation unless they are equipped with well trained staffs who understand the economic and business problems of these industries. Moreover, while intelligent analysis of the economic issues will keep an increasing number of public utility cases out of the courts, it is highly important that those who become judges should have an increased understanding of the economic principles of these industries.

If there had been a better understanding on the part of the public of the economic problems of public utilities, we would probably have had, even before the boom period of the late 20's, a more effective regulation of utilities by both state and Federal authority. The general lack of interest and appreciation of the importance of public utility problems is reflected in the fact that, in the year before the recent panic, there was four times as much instruction in our colleges and universities in the old field of railroads as there was for all of the other public utilities combined. Only mental inertia can explain such a condition. Within recent years, colleges and universities are giving increased attention to the study of public utilities. This will be essential regardless of the form of ownership and management. If we were to have complete government ownership and operation of all utilities, it would nevertheless be necessary to give serious consideration to the preparation of men for the public utility industries and for service on regulatory commissions and on the bench. It cannot be too strongly emphasized that we do not get rid of knotty economic and business problems in the field of public utilities by a mere shift in the form of ownership and operation.

PRESENT CENTRAL STATION CAPACITY IN THE ELECTRIC POWER INDUSTRY

BY A. ROSS ECKLER

THE adequacy of existing electric generating equipment in the central stations of this country was a subject of sharp controversy during the spring of 1935. There appeared in April the first report of the National Power Survey conducted by the Federal Power Commission under the provisions of an executive order of August 19, 1933. One of the most important conclusions of this report was that:

> . . . analysis by districts of the relation between the capacity of existing plants and the demand that will be created with the resumption of normal industrial activity shows that critical shortages will exist in almost every section of the United States.

This finding was promptly challenged by the Edison Electric Institute, the trade association of the electric power industry; in the April number of the *Edison Electric Institute Bulletin* Bernard F. Weadock, Vice President and Managing Director of the Institute, criticized the methods used by the Federal Power Commission and declared that present generating capacity is sufficient to carry a load 20% greater than that currently being served.

Appraisal of the adequacy of electric generating equipment is of timely interest because of the important influence of power-plant construction upon the capital-goods industries. During the past few years the construction program of the electric light and power industry has dwindled, but over the four-year period, 1926–1929, the average annual expenditure on new producing, transmitting and distributing plants was $810,000,000.

Capacity Ratings and Load Measurements

Detailed treatment of the issues involved in the controversy over generating capacity will be facilitated by a preliminary statement regarding certain peculiarities of the basic data employed. A first approach to these data leads to the conclusion that an appraisal of the adequacy of generating capacity should be relatively easy, inasmuch as capacities are usually stated in terms of kilowatts and hence are directly related to the units of output of the machines being rated.

This apparent simplicity is, however, extremely misleading. Although the following discussion of some of the technical difficulties of the measurement of power capacity may be highly elementary, it will nevertheless serve to indicate why the student of capacity figures must be extremely wary of leaning too heavily upon his data. In the first place, capacity ratings are not fully trustworthy. In the case of some of the older equipment, manufacturers did not know how to build closely to a set of specifications and often constructed generators with a liberal margin above the rating. Second, the ability of a unit of generating equipment to deliver useful power which will be recorded on the customer's meter is affected by the power factor at which

the energy is consumed. The power factor may be defined simply as the ratio between the useful or effective power and the total apparent power employed. Since this ratio varies with the type of load and with certain other influences, it is obvious that the rated capacity of a generator is not an unvarying measure of the demands it can meet. Third, the theoretical plant capacity obtained by adding the generator ratings may be somewhat in excess of the effective working capacity of a particular system. Deficiencies in the supply of such equipment as furnaces, boilers, and condensers may make it impossible for a given plant to be operated at its rated generator capacity. In the case of certain water-power plants, a fairly large percentage of capacity may be utilized for only the short period of the year when water flow is at peak. Finally, the usefulness of a generator is not determined wholly by the rating on its name plate. Its environment must also be considered. Many combinations of operating units may be set up to bring about a certain result, and the choice of a particular combination is dependent upon such complex considerations as the cost of fuels, the type of service required, the availability of interconnections, etc. Hence a steam plant of 50,000 kw. may be on the verge of discard in one system, while in another it may be an integral part of the total plant, carrying an important load throughout the year.

The next series of difficulties occur in the determination of the maximum load likely to be placed upon available generating capacity. Measurement of peak demand is of particular importance in the electric power industry because production and consumption are practically simultaneous and storage of the product is not commercially feasible.[1] Moreover, since an electric utility is under obligation to serve, it must either have sufficient generating capacity to meet its peak demand or have contracts with other utilities for the purchase of peak-load power.[2]

Variations in the demands placed upon a power system during a year may be very large. The writer has seen a load curve for a typical residential community in which the maximum load is about nine times as large as the minimum. Many large and well diversified systems have an annual load factor below 50%, or, in other words, have a peak load more than twice as great as their average load.

If the peak demand came at the same time for all companies, it would be proper to compare the sum of the individual peaks with total generating capacity in order to judge whether the maximum requirements for power could be safely met by existing capacity. It may be noted that peak demands would be useful for such comparison only when their duration was sufficiently long to make it impossible for the maximum to be met by temporary overloading. An instantaneous peak, or one of only a few minutes' duration can often be met by overloading the electric generating equipment, but such overloads usually bring about a rise

[1] The use of storage batteries is too expensive to be attractive for large-scale storage of electric energy. Mention may be made of two practices which serve to bring about somewhat similar results, but their use is not very important at the present time. One of these is the pumping of water at off-peak periods into a storage reservoir to be used to supply peak-load energy; the other is the use of energy for off-peak water heating. Neither of these practices, of course, increases actual peak-load generating capacity.

[2] An exception to this is found in certain contracts between power companies and large users, under which the customer agrees, upon notice from the utility, to get off the line and supply his own needs.

in the operating temperature and hence cannot be safely continued for a period much longer than one-half hour.

Fortunately for the power industry, however, peak demands usually exhibit some diversity. This may be attributed in part to the purely physical factor of differences in time zones which enable effective exchange between adjacent power systems serving communities located in different time belts. Much more important are the differences in load characteristics. For example, the heavy industrial load of upstate New York and the great night load of the metropolis have markedly dissimilar daily curves, and make possible an advantageous exchange of electric energy between the Niagara Hudson Power Corporation and the Consolidated Gas Company of New York. Coördinated operation of this sort is already to be found in a number of regions and will doubtless become more important.[3] The possibility exists, moreover, for effective interconnections between industrial companies and central stations, such as that exemplified by the Deepwater project in New Jersey where E. I. du Pont de Nemours & Company, American Gas and Electric Company, and The United Gas Improvement Company operate jointly a large three-section plant.

It is probably correct to assume that the peak demand for the entire country occurs in the week of maximum output, which in a number of recent years has been the third week in December. However, it is certain that the peak for some systems would not be found in that week. In California, for example, and probably in certain other states, the peak occurs in the summer.

Conclusions of the Federal Power Commission

Criticism of the study of generating capacity made by the Federal Power Commission will center about two main points. The first is that insufficient emphasis was given to the fact that the realization of the predicted "critical shortage" is dependent upon the joint fulfillment of two conditions: an increase in power production that can scarcely be attained before the middle or end of 1937; and a stationary amount of generating equipment. Continued growth in loads is, of course, to be expected; but it seems unlikely that the power companies will disregard their obligation to serve by failing to provide new capacity when it is required. The second point relates to the method by which present generating capacity was demonstrated to be too small to carry the loads expected upon the resumption of pre-depression industrial activity.

Prior to a detailed description and evaluation of the Federal Power Commission's study of generating capacity, it is desirable to pay tribute to the commission for its comprehensive and careful compilation of data, only a part of which has been presented in the first report of the National Power Survey. The information was based upon the reports submitted by 215 systems, each with an annual output of 25,000,000 kw.-hr. or more. Since the systems produce and handle over 93% of the total energy reported by the United

[3] It is too early to determine whether the recent holding-company legislation will bring about any important reversal of this movement. Shortly after the passage of the bill, the Hartford Electric Light Company announced its retirement from the Connecticut Valley Power Exchange, an operating arrangement which has been regarded as an excellent example of the economies resulting from the coördinated operation of generating plants.

States Geological Survey as generated and distributed for public use in the United States, they must be regarded as furnishing a sample adequate for practically any statistical purpose. One of the noteworthy features in the first report is an official map of electric generating plants and transmission lines in the United States, showing in detail both public and private plants, subdivided by type of prime mover. Another important feature is the section of the report dealing with generating equipment classified according to year of installation, size, and operating efficiency—the first broad study of the sort ever made. Favorable mention might also be accorded a number of other series of data that were collected by the Federal Power Commission. Some of them, indeed, should be incorporated into the official schedules used for the recurrent inquiries of the Bureau of the Census and the United States Geological Survey.

The Federal Power Commission found immediate justification for a study of generating capacity in the fact that the years 1933 and 1934 witnessed a rapid recovery in the use of central-station power while there had been comparatively little increase in capacity since 1930. Continued expansion in the use of electric energy was deemed likely, and the following table shows the actual use of electric power by various classes of customers for the years 1929 to 1933 and their estimated use upon "the resumption of pre-depression industrial activity." The estimates shown in the final column of the table were based upon a consideration of various factors affecting the use of electric power. Thus, for domestic users, recognition was taken of the fact that consumption increased 25% from 1929 to 1933, as well as of the fact that the full effects of the large appliance sales during the depression had not been felt. Moreover, the stimulus of reduced rates was held to be an important factor in increasing domestic consumption. In the case of large light and power sales, it was stated

TABLE I

ANNUAL CONSUMPTION OF ELECTRICITY IN THE UNITED STATES, 1929–1933, BY CLASSES OF CUSTOMERS

(*Data taken from reports of 215 systems*)

Unit: 1,000 kw.-hr.

	1929	*1930*	*1931*	*1932*	*1933*	*Estimated Consumption upon Return of Pre-depression Industrial Activity*
Farm	1,503,000	1,666,000	1,787,000	1,448,000	1,502,000	2,069,000
Residential and domestic	7,957,000	9,157,000	9,904,000	10,120,000	9,971,000	13,093,000
Small light and power	10,636,000	11,312,000	10,852,000	9,987,000	9,727,000	13,014,000
Large light and power	40,255,000	38,021,000	34,850,000	29,606,000	32,153,000	43,800,000
Municipal street lighting	1,556,000	1,696,000	1,824,000	1,748,000	1,592,000	2,335,000
Municipal light and power	1,443,000	1,612,000	1,709,000	1,738,000	1,748,000	1,966,000
Street railway and interurban railway	4,833,000	4,629,000	4,386,000	4,020,000	3,815,000	4,265,000
Electrified steam railroad	520,000	551,000	572,000	544,000	698,000	1,390,000
Miscellaneous	2,730,000	2,725,000	2,550,000	1,680,000	1,793,000	3,415,000
Total	71,433,000	71,369,000	68,434,000	60,891,000	62,999,000	85,347,000

Source: Federal Power Commission, National Power Survey, *Interim Report, Power Series No.* 1. Washington: Government Printing Office, 1935, p. 12.

that industrial establishments of the country, including mines and quarries, during the years prior to 1930 had used about 62,000,000,000 kw.-hr. annually, of which an estimated 40,000,000,000 kw.-hr. were generated by central stations. Upon "the return of a similar period of activity," it was estimated that industrial consumers would require an additional 3,600,000,000 kw.-hr. from central stations. Even though the total volume of industrial activity should not exceed that of the years before 1930, it was expected that there would be a definite increase in power consumption because of the greater utilization of electric energy in synthetic processes, in the electrolytic production of such metals as aluminum and magnesium, and in the heat treatment of certain other metals. Estimates of probable consumption upon the resumption of pre-depression industrial activity were made by districts but were not published in that form in the first report.

The figures shown in the final column of Table I provided the basis for estimates of the output that would be required to meet the predicted consumption and of the peak demands caused by the prospective loads. The figures on output were based upon the estimates of consumption, with allowances for the amounts of electricity used in central stations and lost in transmission and distribution.[4] However, the sum of the maximum demands upon the 215 systems was estimated to rise 20.7%, or slightly more than either consumption or production. This was explained by the fact that the average load factor decreased somewhat during the depression and would probably not return promptly to the 1929 level.

In 1934 the installed generating capacity of the 215 systems covered by the National Power Survey was 31,588,000 kw., a total well in excess of the estimated maximum demands, but subject to qualification (by the Federal Power Commission) because of several factors. The first of these required a consideration of the extent to which special conditions attached to individual plants served to render the dependable or effective capacity less than the rated. According to reports submitted by the individual systems, the dependable capacity was 27,300,000 kw., or 14% less than the installed capacity.

It was assumed that 3,917,000 kw. would be a minimum requirement for spare capacity in order to insure adequate service at all times. This gave a margin of safety in excess of 14% for the country as a whole, a percentage which varied considerably from district to district according to the degree of interconnection and the character of the generating equipment.

The next factor taken into account was the extent to which anticipated growth should be met by provision of equipment in excess of immediate needs. This was taken to equal at least the capacity involved in one year's growth of business and was estimated at 10%.

Finally, a study was made of the ages and efficiencies of existing generating equipment in order to determine what proportion might be so obsolete as to require early replacement. It was concluded that perhaps 2,000,000 kw. might need to be replaced, representing a major portion of the units over 20 years old and consuming more than 25,000 B.t.u. per kw.-hr.

[4] For the entire United States, consumption upon the return of pre-depression industrial activity was estimated at 19.5% above the 1929 level, production at 19.9% above.

Allowance for these several factors led the Federal Power Commission to the conclusion that present capacity would prove inadequate to meet demands upon the resumption of pre-depression industrial activity. The 27,300,000 dependable kw., when reduced by 3,917,000, the allowance for spare capacity, would equal 23,383,000, a total only slightly in excess of the 23,039,000 kw. representing the estimated prospective peak demands upon the 215 systems. This would leave a slight margin of safety for the country as a whole, but the analysis by districts revealed that the deficits in individual areas would total 845,000 kw. If allowance should be made for the 10% reserve thought desirable for growth, the country as a whole would show a deficit of nearly 2,000,000 kw., and the sum of the deficits for individual districts would be 2,325,000 kw. If to this there should be added the estimated 2,000,000 kw. of obsolete capacity requiring early replacement, there is obtained a total prospective construction requirement of more than 4,000,000 kw.

The steps by which this conclusion was reached are open to question at a number of points. Criticism of the estimates for consumption shown in Table I, as well as of the method used to appraise the adequacy of present generating equipment to meet prospective needs, will be attempted.

It will be noted in Table I that residential and domestic consumption was estimated at nearly 65% above the level prevailing in 1929. By the end of 1934, according to figures collected by the Edison Electric Institute, the actual increase over 1929 was 31%.[5] Although annual increases much in excess of 10% are now being achieved by certain individual companies, it seems unlikely that the country as a whole can show a growth which will enable the attainment in less than two to three years of the level estimated by the Federal Power Commission.

The estimate for small light and power sales (commercial) placed the prospective total at 22% above that of 1929. Since 1934 was at about the same level as 1929, and the maximum annual growth in the years 1926–1929 was 13%, it would seem likely that two years might elapse before the estimated totals could be realized.

The estimate for large light and power sales (industrial) was apparently based upon the assumption of a return of the 1929 rate of activity as roughly equivalent to "a resumption of normal industrial activity." The explanation of the forecast for large light and power consumption made reference to an

CONSUMPTION OF ELECTRICITY IN 1933
Unit: 1,000,000,000 kw.-hr.

	F.P.C.	*E.E.I.*
Farm	1.50	*
Residential and domestic	9.97	11.96†
Small light and power	9.73	12.47
Large light and power	32.15	33.72
Municipal street lighting	1.59	2.21
Municipal light and power	1.75	
Street and interurban railway	3.82	4.00
Electrified steam railroad	.70	.66
Miscellaneous (including irrigation pumping)	1.79	
Municipal and miscellaneous		.72
Total	63.00	65.75

* This item is not segregated in the main tables of the Edison Electric Institute. A special tabulation shows that sales to farms east of the 100th meridian totalled 389,000,000 kw.-hr. in 1933; to farms west of the 100th meridian (where irrigation pumping is very important), 1,244,000,000 kw.-hr.
† Includes non-irrigated farms.

[5] As the accompanying table shows, the classification of consumption data made by the Federal Power Commission differs somewhat from that employed by the Edison Electric Institute.

Direct comparisons between subdivisions of the two sets of data are therefore impossible, and it is necessary to use percentage changes to show the extent to which recent totals are approaching the government forecasts. Even percentage changes are not wholly satisfactory, since the relationships between the data from the two sources vary.

estimated 40,000,000,000 kw.-hr. consumption of central-station power by industrial establishments in the years prior to 1930 and a prospective increase of 3,600,000,000 kw.-hr. upon the return of a period of similar activity. These figures check closely with those shown in Table I, applying to 215 systems, wherein it appears that 40,000,000,000 kw.-hr. was the actual 1929 consumption of electric energy by the industrial customers of those systems. The reference made to a series of years before 1930 cannot be checked, but, as Table II shows, increase in industrial power sales by the 215 systems was presumably rapid over the years 1926–1929. The average annual consumption during this four-year period was probably less than 35,000,000,000 kw.-hr., an amount appreciably below that recorded in the boom year, 1929. It would seem that the Federal Power Commission in estimating a 9% increase above the industrial consumption of power recorded in that year was making a rather generous allowance for the burdens likely to be placed upon central stations.

TABLE II

CONSUMPTION OF ELECTRIC ENERGY BY LARGE LIGHT AND POWER CUSTOMERS

Unit: 1,000,000,000 kw.-hr.

	1926	*1927*	*1928*	*1929*
Total United States*	32.61	35.26	38.90	44.33
215 Systems	29.62†	32.02†	35.33†	40.26

* Data from Statistical Bulletins of Edison Electric Institute.
† Estimates based upon assumption that year-to-year changes for 215 systems were the same as those for the entire country.

Other parts of the estimate of prospective consumption need not be considered at length since they are much less important than the three parts already discussed. Most of the individual estimates seem to be sufficiently generous to care for any contingency that might arise. In particular, it is difficult to believe that municipal street lighting will increase to a level 50% above 1929 (47% above 1933) within any short period.

For the 12 months ending with June, 1935, the total sales of electric energy reported by the Edison Electric Institute were 73,000,000,000 kw.-hr. The sales for 215 systems as predicted by the Federal Power Commission upon resumption of pre-depression activity were 85,000,000,000 kw.-hr., an amount corresponding to a total of something like 89,000,000,000 kw.-hr. for the entire industry. The reaching of this total calls for a 22% increase above the year ending June, 1935, an advance not likely to be recorded within the period of a year, the time reasonably required for building and placing in service a complete new steam plant. Study of the weekly figures on power output, which are currently about 12% above those of 1934 and slightly above those of 1929, would suggest that the estimate of total output made by the Federal Power Commission would not be realized for the calendar year 1936, though it might be attained for the fiscal year ending June 30, 1937.

Consideration may next be given to the method by which the adequacy of present generating equipment was appraised on the basis of probable near-term maximum demands. Reference has already been made to the impracticability of adding the peaks for individual systems in order to get a significant total either for a region or for the entire country. Until some organization collects data on simultaneous peaks for regions within which the diversity of peak demands enables effective interchange of power, no really satisfactory comparison between capacity and demand will be possible except on the basis of the individual company.

Credit is due the Federal Power Commission for an attempt to secure estimated peaks in each of the 45 districts of the United States, which were chosen "so that as nearly as possible completely interconnected groups were included in a single district." The method of estimate was not indicated in the interim report, but a study of the schedules leads to the conclusion it must have been somewhat rough. At best, the method could have made only a partial allowance for the diversity of demand, because it did not take into account the exchanges of power across district boundaries.

The soundness of the method may be tested by an application of it to data for 1929. In that year the output of the 215 reporting systems was 87,295,000,000 kw.-hr., or 96.9% of the 90,084,000,000 kw.-hr. for all central stations as reported by the Edison Electric Institute. The assumption of the same percentage for generating capacity would indicate that the 215 systems had an installed capacity of 28,600,000 kw. at the end of 1929. This would be reduced to 24,700,000 dependable kw., if the ratio of dependable capacity to total was the same in 1929 as in 1934. Similarly, the 14% deduction for spare capacity would be 3,550,000 kw., leaving as a remainder 21,150,000 kw. The 1929 sum of peak demands was 19,120,000 kw. On the assumption that a 10% reserve is desirable, the peak would become 21,032,000, a total less than 1% below the adjusted capacity figure of 21,150,000 kw. It would be extremely unusual to find a uniform relationship between capacity and demand throughout the country in any year, and, therefore, it is safe to conclude that an extension of the same allowances to state and regional totals (not feasible here because of lack of data) would show appreciable shortages in many areas in 1929.

Whether this conclusion should be regarded as invalidating or confirming the reasonableness of the allowances used by the Federal Power Commission depends upon the facts regarding the adequacy of capacity in 1929. It is true that notable additions to generating equipment were made in the following year; however, determination cannot be made of the construction attributable to governmental pressure to maintain employment and that resulting from immediate requirements.

The majority of informed opinion would probably not support the conclusion that the capacity of central stations was barely adequate in 1929.[6] In this connection the following statement may be quoted:

> Beginning with 1912 with a capacity factor of 26%, the curve mounts rapidly until in 1922 we find that the annual capacity factor reached 35%, but that after that year it rapidly slumped off until in 1931 the annual capacity factor was only 30%. Clearly the industry has consistently overbuilt since 1922.[7]

[6] Attention is directed to the following quotation from the report of the Commission, indicative of earlier policies with respect to building programs: "An analysis made of several of the larger and more important systems indicates that their practice prior to the depression, when system loads were growing, was to install capacity in excess of peak demands equal to from 25% to 45% of the dependable system capacity." Federal Power Commission, *op. cit.*, p. 19.

Of interest also is the following excerpt from a speech made by Mr. David E. Lilienthal on November 10, 1933, to which Mr. Wendell L. Willkie referred in the *Public Utilities Fortnightly* for June 6, 1935, p. 636: "Looking at the country as a whole, without respect to public operation or private operation, it is perfectly evident that we now have and soon will have a tremendous surplus supply of electricity."

[7] Justin, J. D., and Mervine, W. G., *Power Supply Economics*. New York: John Wiley and Sons, Inc., 1934, p. 21.

Further discussion of the methods used and the propriety of the assumptions made in the government report will not be attempted here. The subject is definitely controversial, and in the present state of knowledge regarding it, little seems to be gained by detailed treatment of the various assumptions.

Reports of the Edison Electric Institute

In view of the striking character of the conclusions of the Federal Power Commission and the doubts they seem to cast upon the wisdom of power executives in making provision for future needs, one might naturally expect that the Edison Electric Institute would have attempted a thorough discussion of the findings of the government report. The experience of the Institute in handling data on the power industry, coupled with the fact that it has in its files, or can secure from member companies, almost any kind of information needed, renders it the logical agency for defending the industry against the indictment of lack of foresight. However, there is reason to believe that the statisticians of the central group regard the relationship between available generating capacity and customer requirements to be a matter of concern only to individual companies and are distrustful of any attempt to determine relation between capacity and demand on a state-wide or national basis. In any event, the reply of the Edison Electric Institute to the report of the Federal Power Commission, though vigorous, was comparatively brief and restricted to simple calculations.

In the April issue of the *Edison Electric Institute Bulletin*, Mr. Bernard J. Weadock stated that existing generating capacity is 6,000,000 kw., or more than 20%, in excess of current needs[8] but did not reveal the method used to obtain this figure; moreover, he offered certain specific objections to the methods used by the Federal Power Commission in reaching the conclusion that present capacity is potentially deficient. With reference to the generating equipment in the older plants, Mr. Weadock stated that such equipment is ideally suited to meeting peak loads, and hence should be included as a part of effective generating capacity.

The *Statistical Bulletin* for 1934 issued by the Edison Electric Institute contained a brief reference to the problem of capacity. Data for the weeks of peak output in 1929 and 1934 were presented, and it was shown that at the 1929 rate of activity the peak demand of 1934 could have been met with a total generating capacity 4,842,000 kw. less than that actually in use.

A Study of Capacity Factors

The foregoing discussion has served to indicate the difficulties involved in any direct relating of total generating capacity to the sums of maximum demands experienced by individual systems. The data available are not sufficient for the purpose, and there is a lack of agreement among engineers as to the size of margins required.

The divergence between the views of the Federal Power Commission and the Edison Electric Institute is so considerable that a third calculation may be useful as a means of determining whether a critical shortage of power impends or whether margins of safety

[8] While this indicates that a 20% greater output would be possible for the country as a whole, variations in the proportion of surplus equipment would render this increased output unavailable to meet a general 20% rise in demand.

are still ample. In the absence of the proper data for this determination, it is important that the question be examined from as many angles as possible. By the use of available data on production and capacity, it is a simple matter to determine the average number of hours each unit must have operated in a given year. The average number of hours of utilization, expressed as a percentage of the number of hours in a year (8760) is called the capacity factor. In view of certain peculiarities of the power industry, some of which were enumerated in an earlier section, interpretation of the absolute size of the capacity factor is unusually difficult.

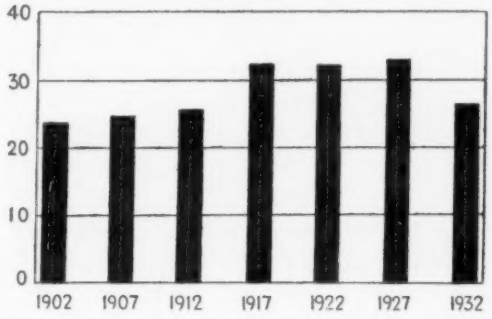
The application of this approach indicates that in most of the states the output of power could be substantially greater than in 1934 without requiring rates of plant utilization equal to those of 1929. If the 1929 rates represent a ceiling—which seems unlikely—there are a few states where additional construction will probably be called for in the early future, although special factors may put off the need for a time.

This method of calculation is not without difficulties, and some of them should be given attention. In the first place, the normal relation between the two magnitudes, capacity and output, is unknown, and hence one cannot appraise the significance of a departure from past relationships. Second, there have been certain developments in the power industry which would tend to make the normal relationship a changing one. For example, the gradual improvement of load factors, as system loads have been built up, and the striking increase in interconnections among generating stations, both serve to make possible a more effective utilization of producing equipment. Irregular influences, such as drought, may affect the capacity factor by reducing sharply the maximum possible output in a region where water power is important.

The operation of these factors is revealed in the accompanying charts of the capacity factors of the central-station industry.[9] Chart I is based upon figures collected by the Bureau of the

CHART I

ANNUAL CAPACITY FACTORS OF CENTRAL STATION GENERATORS FOR ELECTRICAL CENSUS YEARS, 1902-1932



Census, and Chart II upon annual data gathered by the United States Geological Survey, the National Electric Light Association, and the Edison Electric Institute. The first shows that in the years 1902, 1907, and 1912—only one of them a depression year—capacity factors for the industry were uniformly lower than those recorded in the severe depression year of 1932. It may be noted that the level of utilization attained in 1917 was not much below that of 1927 nor of the boom year 1929 shown in Chart II. The latter chart shows that in the years 1920, 1922, 1923, and 1924 the capacity

[9] The capacity factors have been computed by the following formula:

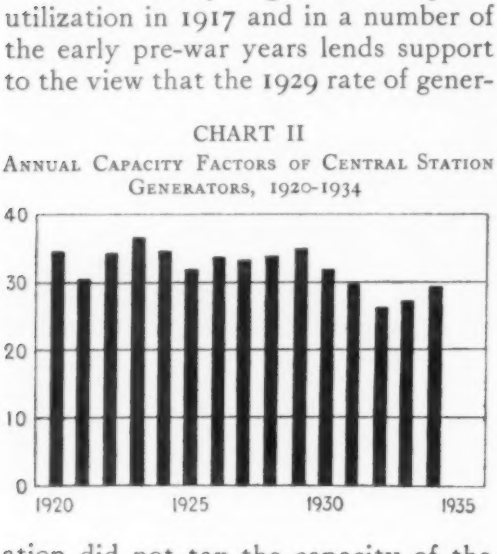
$$\text{C.F.} = \frac{\dfrac{\text{Annual output in kilowatt-hours}}{\text{Generating capacity in kilowatts at end of year}}}{8760} \times 100$$

factors were practically as high as in 1929.

The relatively high rate of plant utilization in 1917 and in a number of the early pre-war years lends support to the view that the 1929 rate of generation did not tax the capacity of the electric power industry. On the contrary, progress in interconnections and other developments in the industry by 1929 make it seem probable that a considerably higher capacity factor might have been attained if the demand had required it.

CHART II

ANNUAL CAPACITY FACTORS OF CENTRAL STATION GENERATORS, 1920-1934



As the accompanying table shows, total capacity factors mask basic differences in the rates of operation of fuel- and water-power plants. During the years 1926 to 1929 the average capacity factor for fuel-power plants was 29.2%, while the average for water-power plants was 46.6%. The sharp decline in the output of the latter in 1930 and 1931 was caused by severe drought. It is interesting to note that the decline in the rate of activity between 1929 and 1932 was much sharper for fuel equipment than for hydro-electric equipment, a fact attributable to the lower operating expenses of the latter.[10]

As Table III reveals, the power industry in 1929 operated at a capacity factor of 34.8%. Since this calculation was based upon year-end capacity, the true rate of operation was even higher. A rough adjustment may be made by taking as the capacity for 1929 an average of the figures reported for the beginning and the end of the year. On this basis, the electric power industry in 1929 operated at a capacity factor of 36.2%.

If it is proper to assume that such a rate is economically practicable under present conditions, it would be possible with the 1934 capacity of 33,241,955 kw. to produce over 105,000,000,000 kw.-hr.[11] This total is 17% above the output of 1929, and nearly 24% above that of 1934; it is almost identical with the peak generation estimated by the Federal Power Commission to be re-

TABLE III

CAPACITY FACTORS OF CENTRAL-STATION GENERATORS

Unit: 1%

Year	*Total*	*Fuel Power*	*Water Power*
1926	33.6	29.6	44.6
1927	33.1	28.6	45.9
1928	33.7	28.3	48.6
1929	34.8	30.5	47.5
1930	31.6	28.4	40.6
1931	29.5	27.3	35.7
1932	26.1	21.2	39.8
1933	27.0	22.1	40.3
1934	29.2	25.3	39.7

Source: Based on data taken from the Statistical Bulletins of the National Electric Light Association and the Edison Electric Institute.

[10] This does not necessarily imply a long-run advantage in the use of hydro-electric power because total costs must include interest on a substantially higher investment in generating plant and often in transmission lines. However, once a hydro-electric plant and the necessary transmission lines have been installed, the return upon this property becomes a quasi-rent in the sense in which Marshall has used that term, and the advantage of intensive utilization is obvious.

[11] A figure of 37% is cited as practicable in Justin and Mervine, *op. cit.*

In a somewhat similar calculation in the *Public Utilities Fortnightly* for June 6, 1935, p. 638, Mr. Wendell L. Willkie used a factor of 39%.

quired of the 215 major systems upon the resumption of pre-depression industrial activity.

This margin cannot be assumed to exist uniformly throughout the country. The data shown in Table IV have, therefore, been derived in order to compare the 1929 and 1934 rates of activity in different parts of the country. However, caution is necessary in the interpretation of the significance of changes shown in the utilization of capacity within a particular state. Shifts in the extent of interstate transmission and variations in water supply are two of the elements that may render a variation between 1929 and 1934 of little significance. Moreover, without knowledge concerning the normal rate in a given state, it is unsafe to conclude that an approach to the 1929 rates of output necessarily involves additional construction in the early future. It may well be true that the 1929 capacity in that state was temporarily excessive as a result of the completion of a large station designed to meet growth requirements for several years.

Changes may be regarded as more significant for the six regions shown in the table, which have been chosen to include areas which are mainly independent as far as their power resources are concerned. The reasons underlying the choice of groups cannot be explained without a brief reference to the scope of interstate transmission. Since desirable power sites are often located across a state line from the markets they can most advantageously serve, there is a large amount of power which regularly flows across state lines without being offset by any reverse movement. The National Electric Light Association formerly reported the extent to which the volume of interstate transmission was attributable to the operations of a comparatively few large plants which sent the bulk of their output over a state line. When the states were grouped in Table IV, an attempt was made to avoid separating states between which such transfers have taken place in considerable volume. There is also much intermittent or irregular flow of electric energy across state lines in response to special factors of supply and demand. Many of these movements tend to cancel out over a year but even if they did not, it would be impracticable to group states with reference to this kind of power transfer.

The rate of output for the country as a whole in 1929 was about 19% higher than in 1934. It is interesting to note the deviations from this relationship in the various areas of the country. Although the generalization can be made that the variations are predominantly within a narrow range, it may be worth while to touch briefly upon the outstanding departures from the average.

The New England region, in which water provides the motive power for nearly one-third of the prime movers installed in central stations, shows a 1929 capacity factor 14% higher than that of 1934. Since capacity in the New England section showed a slightly smaller advance between 1929 and 1934, and the output showed a smaller decline than in the country as a whole, it would appear that this region might be regarded as one of the first to require additional capacity. However, the report of the Federal Power Commission pointed to a surplus in New England with the exception of Maine.[12] As may be seen from the table, both

[12] In this and in subsequent comparisons between the conclusions drawn from the capacity factors and the forecasts of the Federal Power Commission, some

Vermont and Maine showed capacity factors in 1934 not greatly below those of 1929. In Vermont capacity remained almost stationary between those years, but in Maine both the capacity and the output showed sharp advances. Unless the water power of those states is dependable enough to make possible the attainment of a higher capacity factor than that recorded in 1929, there seems to be some support for the view that construction will be in order as further recovery takes place. Massachusetts, in which practically no additional capacity has been provided, would also appear to have much less than the average amount of margin below the 1929 rate of output.

The second group, including the industrial states along the Atlantic seaboard, together with several other closely interconnected states, shows an over-all 1929–1934 relationship of utilization very similar to that for the entire United States, although the Federal Power Commission found a potential shortage of capacity throughout this area. This is a region in which effective interconnection and integration of operation have probably been carried out to a greater degree than anywhere else in this country. The low capacity factor of 27.2% for New York in 1934 (compared with 35.3 in 1929) does not appear to support the finding of the Federal Power Commission regarding the danger of shortage there. New Jersey and Ohio, on the other hand, show a relatively high rate of utilization in 1934 which, taken by itself, might confirm the Federal Power Commission in the view that additional construction will be required in those states. Capacity in New Jersey, however, rose 46% after the end of 1929 and at

TABLE IV

CENTRAL-STATION CAPACITY FACTORS FOR 1929 AND 1934

Unit: 1%

Region	*1929*	*1934*
United States	34.8	29.2
Maine	40.7	36.8
New Hampshire	31.2	25.6
Vermont	29.5	28.9
Massachusetts	27.6	24.7
Rhode Island	30.7	22.2
Connecticut	29.6	25.2
New England	29.7	26.1
New York	35.3	27.2
New Jersey	33.2	37.2
Pennsylvania	37.0	31.8
Ohio	34.0	31.6
Delaware	18.7	8.7
Maryland, District of Columbia	36.1	30.6
Virginia	36.3	28.9
West Virginia	46.5	37.8
Eastern	35.9	30.6
Kentucky	24.0	25.4
Tennessee	34.9	27.6
North Carolina	22.7	18.5
South Carolina	33.6	24.0
Georgia	38.4	27.6
Florida	20.8	21.0
Mississippi	11.5	9.3
Louisiana	48.8	45.3
Arkansas	16.0	10.4
Oklahoma	38.3	25.5
Texas	39.5	28.6
New Mexico	19.7	22.8
Alabama	29.4	30.9
Southern	31.7	25.8
Indiana	30.5	31.1
Illinois	37.2	31.8
Iowa	31.7	27.7
Missouri	26.1	19.4
Michigan	35.3	28.5
Central	34.1	29.0
Wisconsin	34.8	26.7
Minnesota	29.5	25.3
North Dakota	23.5	26.6
South Dakota	20.4	17.5
Nebraska	31.4	27.3
Kansas	33.7	28.2
Montana	59.4	31.9
Wyoming	23.9	22.6
Utah	32.7	17.4
Colorado	30.2	26.0
Idaho	44.7	32.5
Arizona	28.0	29.7
Nevada	46.7	33.0
Agricultural and Mountain	35.9	27.1
Washington	42.1	34.0
Oregon	46.9	33.9
California	36.7	33.0
Pacific Coast	38.6	33.3

measure of the slack; in the other, present capacity is compared with a predicted rate of output that may be two or three years away.

disagreements would be expected. In the one case attention is focused upon the spread between 1934 and 1929 rates of activity as a means of securing some

least some of the new capacity, *e.g.*, that of the Deepwater plant, was built to serve out-of-state markets. This fact and the close tie-in among the Public Service Corporation of New Jersey, the Pennsylvania Power and Light Company, and the Philadelphia Electric Company make it dangerous to draw too definite conclusions from the capacity factor of 37%. This rate of utilization of steam-power equipment is probably not unduly high under the specific conditions obtaining in New Jersey, although considerably higher than would be immediately attainable in many other states.

The 1929 to 1934 variation in the capacity factor for the southern region as a whole conforms closely to that for the entire United States. This is true even if the district is divided into the portions lying east and west of the Mississippi River. Of the states near the Tennessee Valley Authority, Tennessee, the Carolinas, and Georgia appear to have sufficient slack in their generating systems to care for considerable expansion in loads. On the other hand, Kentucky, Alabama, and Louisiana were in 1934 using their generating equipment at a rate approaching or even exceeding that of 1929, and may be coming to a time when they can absorb some of the output of the Federal projects in the Tennessee Valley. With the exception of Louisiana and New Mexico, all of the states in the group west of the Mississippi River appear to have equipment sufficient to meet a considerable expansion of consumption without utilizing their generating equipment more intensively than in 1929.

The fourth group, including the greater part of the central industrial region, shows a 1929 rate of activity nearly 18% above that in 1934, a showing very nearly the same as for the entire country. Indiana alone reveals a contrary relationship and there is a probability that the operations of the huge State Line plant, which supplies energy to the Chicago market, account in part for the higher rate of utilization in 1934.

The agricultural and mountain states included in the fifth group do not contribute heavily to the country's production of electric power. Only Wisconsin and Minnesota had a 1934 output in excess of 1,000,000,000 kw.-hr., and the average production for the other 11 states was about 400,000,000 kw.-hr., or one-half of the output of a single large system such as The Edison Electric Illuminating Company of Boston. Some interconnections have been made among these states, but on the whole this section is much more barren of important transmission lines than any other part of the country. All of the important power states in this area failed to use their capacity in 1934 at a rate approaching that of 1929. North Dakota, Wyoming, and Arizona—all small producers—would appear to have small leeway in their capacity unless their equipment can operate at capacity factors well in excess of those of 1929. The Federal Power Commission discovered potential shortage in two of these, Arizona and Wyoming, and also in Nevada, Colorado, Nebraska, Kansas, Wisconsin, and Minnesota.

Of the three Pacific coast states, both Washington and Oregon expanded their capacity substantially between 1929 and 1934 and should be able to produce a substantially larger amount of energy than they did in 1934. California, on the other hand, showed a rate of activity in 1934 only 10% lower than in 1929; it is likely that the impending

availability of power from Boulder Dam has deferred private construction programs in that state.

Conclusion

The qualifications that have been attached to the various measurements described in this paper make it apparent that the data now available are not sufficient to show definitely the adequacy of present generating equipment to meet needs that may eventuate within the next year or two. Although data better suited to the purpose could be collected, it is not certain that they would make possible a satisfactory solution of the problem because there are certain elements which cannot be expressed in numerical form.

Certain broad conclusions seem to be warranted despite the margin of error entailed in the use of existing data. The situation with respect to the adequacy of power capacity is certainly not so critical as the interim report of the Federal Power Commission would seem to indicate. In the first place, the level forecast by the Federal Power Commission upon the return of pre-depression activity is not likely to be attained before the middle of 1937. Since a complete steam station can be installed and put into operation in about a year, and since additional units may often be installed in existing stations within three to six months, it is not necessary to become alarmed about loads that may not be realized within two years.

It is true, as the Federal Power Commission pointed out, that much longer periods of time are required to provide new hydro-electric capacity, but there is a strong probability that water-power plants will become much less important as a part of private power-plant construction. Most of the best water-power sites from the viewpoint of propinquity to markets have already been developed, and as the less advantageous sites are utilized, they will probably be unable to compete successfully with modern steam plants that are favored by supplies of cheap fuel and abundant condensing water.

Even if the levels of consumption predicted by the Federal Power Commission should materialize within a shorter period, it is very doubtful whether a dangerous shortage of power would impend. Application of the government's allowances to the year 1929 reveals that if capacity was 100% adequate in 1929, it will be about 92% adequate in the year marking the return of pre-depression industrial activity. The expanded load would require the industry to operate at a capacity factor of 37.4% which is only slightly above the 36.6% recorded in 1923.

Generating equipment in the central stations of this country should be able to produce about 20% more energy than it did in the year ending June 30, 1935. However, the existence of this margin does not mean that there are not some points at which new construction will be presently required.

Each electric company, by virtue of its status as a public utility, is obliged to produce or purchase enough electric energy to meet the needs of its customers. Electric companies have to make provision for demands that lie ahead and yet must refrain from unwise expansion that will increase carrying charges long before new revenues can be secured. In the country as a whole, and probably in certain states, there are some companies that can meet demands much heavier than those of the present with their existing equipment; others that now have

about a normal reserve; and still others that must shortly provide new capacity either through new plants or through the modernization of their old plants.

The study of capacity factors by states confirms the existence of this variation in the supply of generating equipment but is not particularly useful for showing the points where construction will be first required. It did reveal a few states in which the 1934 rates of output approached or even exceeded those of 1929; if the latter were as high as practicable, it would seem likely that construction would soon be required. Presumably new construction also will have to be undertaken by a number of companies located in states which appear as a whole to have a reasonable margin for expansion of customer requirements.

It is probably safe to conclude that the power industry, while not threatened by any imminent shortage, could nevertheless contribute substantially to recovery in the heavy industries if government policies should encourage it to expand. In any event, there are doubtless some points at which new private construction will presently be undertaken.

This discussion of capacity will have served a useful purpose if it calls attention to the fact that existing data are unsatisfactory for a comparison of capacity and demand over a territory which extends beyond that served by an individual company. Such a comparison has been attempted by the Federal Power Commission in connection with the formulation of policy as to public works, and there is reason to expect that Federal attention will continue to be accorded the problem. In certain states, moreover, the commissions are required to approve utility construction budgets. Such approval in the case of many projects cannot be intelligently made without a comparison between capacity and consumer requirements that extends over an entire state and perhaps over several states. Study of the relationship must be based upon geographical areas chosen with regard to inter-company transfers of power. If we are to have yardsticks, let us have some which will measure adequacy of generating capacity under different sets of conditions.

CAPACITY CONTROL AND THE ICE CODE[1]

BY ROBERT K. STRAUS

TWENTY-ONE NRA codes included provisions requiring that members of the industry secure permission from either the Code Authority of the industry or from NRA to increase their plant production facilities. These provisions can be conveniently designated as "capacity control" provisions. Although only of academic importance today, it will perhaps be of interest to economic planners to examine the experience with one such provision, Article XI of the Ice Code.

The first sentence of Article XI of the Ice Code, as approved by the President on October 3, 1933, read as follows:

> If at any time an individual, firm, corporation, or partnership, or other form of enterprise, desires to establish additional ice production, storage, or tonnage in any given territory, said party must first establish to the satisfaction of the Administrator that public necessity and convenience require such additional ice-making capacity, storage, or production.

[1] Upon the request of the Editors, the author of the present article offered certain comments upon the article on *Control of Production under the Ice Code* by Benjamin M. Parker, published in the Summer number of the REVIEW. Extracts from these follow.

Mr. Parker is correct, in my opinion, in stating that:

(1) The cause of the inclusion of Article XI in the Ice Code was the desire of the industry to protect its investments.

(2) The administration of Article XI by the Code Authority was most unsatisfactory, since it sought to achieve the protection of existing investments without regard to the protection of the public.

(3) Article XI tended to create a monopoly in a given local area, in so far as it protected existing producers against the introduction of new producing capacity.

Mr. Parker, I believe, is incorrect when he states that:

(1) Because Article XI tended to create a monopoly it was therefore economically unsound.

(2) Because of the inactivity of the utility speculative promoters, the creation of unnecessary ice productive capacity will not take place. In my opinion, the ice machinery manufacturers will supply the necessary pressure towards overexpansion, and will succeed in saddling additional unnecessary investment upon an already much overexpanded industry.

I have agreed with Mr. Parker as to his analysis of what motivated the inclusion of Article XI in the Ice Code, and have also agreed that the Code Authority's influence upon the administration of the provision until NRA took over the conduct of the public hearings was most unsatisfactory. It was not, however, that "the smaller men in the industry were not satisfied with the Code Authority's persistent refusal to issue any certificates of public convenience and necessity" which led to the revision of administrative procedure that I have described. Actually, the complaints against the Code Authority's policy came chiefly from the manufacturers of ice machinery and, so far as it did not come from them, from ice distributors who wished to go into the production of ice, usually to create a nuisance value for their plant. But behind these efforts of the ice distributors there almost always lurked an ice machinery company that had no interest in selling ice machinery which would be used, provided that it was purchased.

More important, however, in leading to the change of procedure by NRA than any complaints that were made was the realization that the procedure which had been based on "self-government" by the Code Authority had utterly failed to develop criteria upon which a reasonable decision could be based.

Having admitted that the new procedure of administration by NRA was an improvement, Mr. Parker still doubts whether Article XI would survive the legal test. He points to Mr. Justice Sutherland's opinion in the Liebmann case, where Justice Sutherland saw a tendency to "create and foster monopoly." I agree that had the Ice Code reached the Supreme Court ahead of the Live Poultry Code, Article XI might have been declared unconstitutional. But it is not in the legal validity that I have been interested and I have no quarrel with Mr. Parker, since we have agreed on the beneficial economic results which could follow limitation of productive capacity in the ice industry.

Article XI tended to foster monopoly, but if properly administered, it did not lead to the usual corollary of monopoly, *i.e.*, high prices. On the contrary, Mr. Parker's own Table I shows that it is only possible to produce ice profitably at a cost of $3 per ton at 37%

This provision was written into the Code by the ice industry. The argument advanced by the industry in favor of including it was based upon the fact that the volume of sales of the industry was declining from year to year. Between 1929 and 1933 census figures revealed a decline from a volume of $210,952,000 to $139,412,000. The number of establishments declined from 4,110 to 3,669. This 33% decline in volume was not due to general conditions, but to the increasing competition from mechanical refrigerators, sales of which are estimated by the Bureau of the Census to have increased 20% in 1933 over 1931. The industry argued that despite this declining trend-line, despite the likelihood of a further annual decline in gross business, and despite the existence in most territories of overcapacity to produce or store ice, ice machinery manufacturers were still actively pushing the sale of ice plants, and new enterprises were continually springing up, usually with the hope of creating a nuisance value for themselves and selling out to the established producers at a handsome profit.

Control of Flow of Savings into Investment

Certainly, if the New Deal is to go down as an "adolescent" attempt to introduce regulation by government of private economic activities, as the recent Brookings study of NRA has suggested, the regulation of the rate of flow of savings into investment must be included as a basic part of even such an immature attempt. The importance of the rate of flow of savings into investment to activity in the capital goods industries is today common knowledge. With approximately ten million employees directly dependent upon activ-

of capacity. As the load factor goes up beyond 37% and the existing facilities are thus used even more efficiently, it becomes possible to sell ice at the plant at less than $3 per ton. It would, therefore, be in the interest of the consumer to prevent the introduction of such new production capacity as to drive the average production rate of existing facilities under a *theoretical 100%*—which is the extreme application of my criterion No. 4. Mr. Parker's Table II shows a profit of $49,000 per annum for his 100-ton plant operating at 100% of capacity. This plant could afford to sell its ice at $2 per ton and still make $13,000 per year net profit which would be a 6½% yield on investment.

However, I concede that though prices are reduced as a result of protecting the rate of production of existing producers, it is true that such profit as is made is made by whatever individual or group happened to be installed as ice producers in the area when Article XI went into effect. Thus particular property rights are given protection as a fortuitous result of the application of a policy which results in lower prices to the public. This is fostering monopoly, even though a reasonable monopoly.

Mr. Parker, in concluding, was inclined to take the point of view that I have classified as "classical." He blames the speculating promoters for having saddled "the ice industry with uneconomical ice-production capacity," and quotes Professor Dewing [on the hybrid-utility company] in this connection. I am inclined to doubt whether the "hybrid-utility" was the main cause throughout the country although I know it to have been an important factor in certain particular areas. Because Mr. Parker blames the utilities for the pre-code overexpansion and because their promotive activity is no longer what it was, he takes the view that the danger of continued overexpansion is over. As evidence of this he points out that only 1,125 tons daily capacity was added to the industry in 1933. Because I feel the ice machinery manufacturer to be the true spear-head of the tendency to overexpand, I cannot agree with Mr. Parker.

During my administration of the Code, while I witnessed numerous attempts of entrenched interests to entrench further for purely selfish purposes, I also witnessed numerous attempts of the machinery manufacturers to sell machinery to entrepreneurs whose chief objective was to create a nuisance value for themselves. In one particular case a New York entrepreneur who had erected a 200-ton plant in the spring of 1933 and sold out at double the cost of his plant, after operating a few months, attempted to start all over again in the winter of 1935. After not one but numerous experiences of this *genre*, I cannot agree with Mr. Parker that "only the entrepreneur who has thoroughly studied the demands of his community now seeks admission to the ice industry. Therefore his judgment and faith, which cause him to choose to enter the ice industry, must be respected and honored."

ity in the capital goods industries[2] and the activity of these industries dependent upon investment, the total annual amount of investment becomes a matter of major importance to government.

The New Deal has done very little along this line. It has attempted to stimulate the total annual amount of private investment through keeping interest rates down and through programs such as the Federal Housing Administration, but it has not made any consistent effort to control the direction of this flow. The Securities and Exchange Commission, for instance, is interested in the elimination of the sale of fraudulent investments, but it is not interested in the economic advisability of specific enterprises.

In a recent article in the *Bulletin of the Harvard Business School Alumni Association*, Commissioner Landis said:

> . . . the difficulties attendant upon trying to pass upon the economic justifiability of any particular financial venture are so enormous, that to assume such a function would be to bog down the whole delicate mechanism of public financing.[3]

If we disregard the Interstate Commerce Commission, which antedates the New Deal by many years and which does control new investment in particular railroads, the "capacity control" provisions of NRA codes were the first sporadic and accidental extensions of governmental control into the industrial investment field. "Accidental" is the proper adjective because industry proposed these provisions to protect its existing investments and government was thus pushed into this type of regulation—it did not undertake it on its own initiative.

[2] Report of the NRA Durable Goods Industries Committee, submitted to the Administrator, May 14, 1934.

As Deputy Administrator of the Ice Code the writer became the beneficiary of one of these sporadic and accidental advances into this no man's land of economic planning. Finding myself there, I decided to take the adventure seriously and attempt to determine whether or not the regulation of private investment in the ice industry, at least, would prove to be on the flank of governmental development or in the true line of advance. I asked myself two questions, one general and one specific. The general question was: Is the regulation of the flow of savings into ice manufacturing machinery a proper concern of government? The specific question was: If it is a proper concern, is the capacity control provision in the Ice Code a proper way to bring it about?

Control of Investment in the Ice Industry

In addressing myself to the general question I was not long in reaching a conclusion. My line of reasoning was as follows: A public policy which allows savings to flow into ice manufacturing machinery at a rate which exceeds the actual need or effective demand for the ice to be produced thereby, resulting in the displacement from production of machinery, the usefulness of which is not exhausted and which is *not marginal* with respect to the cost at which it can produce ice, tends to reduce the standard of living of the community. It is important to note the italicizing of "not marginal" above, for I am assuming that the new machinery does not produce ice at a lower cost but supplies ice at the same cost. If this premise be the fact, the particular machinery

[3] Landis, James M., "The Financing of Our Industries," *Bulletin of the Harvard Business School Alumni Association*, July, 1935, p. 265.

which will be taken off the market through loss of sales will be selected by a process other than a pricing process—probably related to good will as operative through brands, distributor arrangements, etc.

It seems to be obvious that if we permit ice machinery to be thrown away before its capacity to produce is exhausted we are deliberately restricting the standard of living of the country, for if the new machinery replaces the old machinery before the usefulness of the latter is exhausted, oversaving has taken place at the expense of consumption. In other words, income has been diverted to the purchase of unneeded capital goods which could well have gone for the purchase of consumer goods. Such a policy with respect to capital goods corresponds to a policy with respect to consumer goods which encourages the junking of houses, automobiles, furniture, or clothing before the articles in question have exhausted their possible usefulness. We have seen the introduction of style elements into the selling of all types of consumer goods in order to speed the replacement of these goods prior to the exhaustion of their usefulness. Though it is not possible to appeal to irrational buying habits in the sale of capital goods as it is in the sale of consumer goods, a public policy which accelerates the replacement of old capital goods by new capital goods before the former are truly no longer useful is equally wasteful, perhaps more so. For consumer goods, through the medium of second-hand markets, may be used by other than their original owners while the market for second-hand capital goods is far more limited.

Therefore, I concluded, it is a proper concern of government to pursue a policy which will bring about a flow of savings into the ice industry proportional to the effective demand for ice and which will tend to prevent the wasting of machinery. If the volume of savings ready to flow into the ice industry exceeds the need for savings, translated into ice machinery, government should concern itself with preventing the conversion of savings into machinery which is not necessary.

In reaching this conclusion I have premised that additional plants which might be established would not produce ice at a cost lower than that of the existing plants. This premise is more than fair, as the relationship between direct and indirect costs in the production of ice is such as to result in a very sharp decrease in total cost as the ratio of actual production to capacity to produce increases. Thus the result of the introduction of new ice machinery in an area already sufficiently equipped is to lower the average ratio of actual production to capacity to produce and hence to increase the total cost of production at each plant already in operation.

Capacity Control Provision of the Ice Code

We come now to the specific question of whether the "capacity control" provision of the Ice Code was an acceptable method with which to carry out an agreed-upon policy which aims to regulate the flow of savings into new capital goods capable of producing artificial ice.

There were two schools of thought on this point. On the one hand, we had those who believed that regulation was best achieved by uncodified competition—the classical economic doctrine. This group argued that any individual who wishes to go into the business of

producing ice should be free to do so, regardless of whether the market in which he plans to sell his product is already adequately served by other producers or not. The rate of return on investment will act as sufficient regulation. If there is no profit to be made, the individual will not enter the business of producing ice. Or, if he enters it, and thinks that there is a profit to be made and finds that he is mistaken, he will retire either voluntarily or through bankruptcy.

Those opposed to this "classical" view—the economic planners—argued that if the classicists will admit that regulation of the flow of savings into investment is desirable, it can never be accomplished under a regime of uncodified competition. The reason, according to the planners, is that under uncodified competition effective regulation only takes place after investment through destruction of investment. The excess investment is eliminated through retirement of the excess capital goods from the business scene. This is not control of new investment at all, but control of total investment through destruction of excess investment. The excess saving has taken place, the excess investment has taken place, the excess capital goods have been purchased, the plant has started to operate, and then the investment in plant has been destroyed. Thus the objective of public policy, as we have stated it, has not been achieved, since capital goods have been thrown away before their capacity to produce has been exhausted, and in so far as capital has been unnecessarily accumulated and then destroyed, the standard of living has been lowered.

Personally, I soon found that I must side with the "planners." It seemed to me perfectly clear that the regulative effect of competition, when and if it comes, comes too late, and results in an unnecessary construction and destruction of machinery. Furthermore, I soon found that the "natural" regulative effect of competition may never take place. With the exception of a dozen metropolitan areas, competition was noticeably absent among ice producers in the majority of markets with which I came into contact. In most areas, the established producers had organized to prevent competition from resulting in the destruction of such excess capacity as might happen to exist, through agreeing upon a schedule of prices to be maintained, dividing the market, and buying out any newcomer who threatened to disturb the *status quo*. Such organization had existed prior to the Code and undoubtedly will continue now that the Code has been abolished. Thus, even though competition were acceptable as a means of regulating excessive investment in the ice industry, it could not be effective in most areas because the markets have been "organized" to prevent it from being effective. In my opinion, the practical choice was not between regulation via uncodified competition and regulation via codified competition, but between self-regulation without benefit of governmental supervision and regulation by government. In other words, if we agree that it is desirable to restrict investment in the ice industry, the choice of method is not a choice between competition and planning, but a choice between planning by industry and planning by government.

In inserting Article XI in the Ice Code, the ice industry sought to legalize the type of industry-planning that already existed illegally in most markets. It, *ipse facto*, voted against

competition and in favor of planning, provided it could do the planning itself. During some nineteen months' experience in administering the provision, NRA learned that in the public interest it could not assent silently to planning by the industry, but that it was possible for government to do the planning and to achieve public objectives while restricting the flow of savings into ice machinery to the actual need for such machinery. In order to delineate this shift in point of view on the part of NRA from planning by the industry to planning by the government, we must review briefly NRA's experience in administering Article XI.

Administration of the Ice Code

After the approval of the Ice Code, NRA immediately started to receive applications for "certificates of necessity and convenience," indicating that "public necessity and convenience require such additional ice-making capacity, storage, or production" and that such had been established "to the satisfaction of the Administrator." From the approval of the Code to May 27, 1935, 412 applications were received by NRA. Seventy-two of these were exempted because it was ruled that the applicants had started construction before the Code and without knowledge that they would require permission under the Code to operate their plants or storages. Sixty-five applications were voluntarily withdrawn by the applicants. One hundred and sixty-five applications were approved by NRA; fifty-two were denied; and fifty-eight were still being considered, no final action having been taken by NRA when the Supreme Court handed down its decision in the Schechter case.

The responsibility for administering the Code in NRA, during the period October, 1933–May, 1935, passed through the hands of five different Deputy Administrators. Thus administrative procedure differed, according to the ideas of each. The first two followed a policy of keeping the procedure as simple as possible. The local Committees of Arbitration and Appeal, composed of members of the ice industry, were allowed to receive the applications first, to conduct public hearings thereon, at which the applicant would appear, and to make recommendations through a Regional Adviser to the National Code Authority of the Ice Industry at Washington, which would finally make recommendations to the Deputy Administrator. After consulting representatives of the NRA Advisory Boards he would usually follow the recommendations of the National Code Authority, writing the applicant a letter, granting or denying his application. This was during the early days when it was agreed that the Code Authority would provide "self-government," NRA setting its seal of approval upon the Code Authority's actions. The third Deputy Administrator decided that a more formal procedure must be established and thus "red tape" began to appear. He started the issuance of administrative orders, in the place of letters of approval or denial. These orders were approved by the National Industrial Recovery Board, which had then replaced the Administrator. The writer completed the introduction of "red tape," when he took over administration of the Code. The entire procedure was changed, as the result of receiving a recommendation of denial of a certificate of necessity from a Committee of Arbitration and Appeal located in a territory

where the price of ice to the consumer was double the normal price, investigation revealing the probable existence of a monopoly in the hands of certain members of the industry connected with the Committee of Arbitration and Appeal. The applications were ordered all filed with NRA first. Two field representatives were employed by NRA to conduct the local hearings on the applications and to make findings of fact as to the conditions in the industry in the territory where the application arose. The Committees of Arbitration and Appeal were still permitted to appear at the hearings to present the point of view of the vested interests and to make recommendations through the National Code Authority to the Deputy Administrator. The Committees were also asked to submit certain basic data on the industry in their respective territories, the accuracy of such data being assured by their submission in affidavit form.

Under the above procedure I am convinced that we were approaching an equitable procedure. We had developed certain basic criteria which we attempted to apply to the consideration of the status of the industry in each market area where an application to construct additional production or storage facilities arose. These criteria were as follows:

1. Was there ample production capacity to meet the peak demand for fresh ice?
2. Was the manufacturing equipment modern and efficient?
3. Was the average annual load factor high enough to indicate economical use of available facilities?
4. Was the ratio of the values of total fixed assets in the area to total production comparable to that existing in other areas?
5. Was the price of ice at the plant reasonable?[4]
6. Was the price of ice delivered at the home reasonable?
7. Was the service to the community adequate, in the sense of ice being available at any hour, delivered to the home with speed and courtesy?

If the industry in a given market area could score 100% on an examination based upon these seven questions, it was fairly certain that public necessity and convenience did not require any additional production facilities.

Conclusion

The Supreme Court has restored the ice industry, among others, to a theoretical regime of uncodified competition so that the theory and practice of Article XI is now only of academic significance. I have already suggested the fictional character of competition in this industry in so far as most areas, other than metropolitan, are concerned. Whether the experience gained in this "adolescent" attempt to regulate the flow of savings into investment will ever be built upon, no one can say. In any event, savings may now flow unimpeded into the ice industry. As I have said, just what economic purpose is served by this restoration to the *status quo ante*, it is difficult for me to see. While willing to admit the practical obstacles involved in regulating the flow of savings into investment, even in an industry where the nature of the product, the variations in demand for it, and the processes necessary to produce it are all relatively simple, as in the case of ice, I cannot see that we must reject the policy because of the difficulties which emerge in applying it. If we admit that lack of regulation

[4] "Reasonable" was construed to mean comparable to a possible minimum based upon cost studies.

of the flow of savings into investment leads to waste, because adjustment of the ratio of capital goods to the demand for consumer goods can only take place through the destruction of capital goods, unless we address ourselves to this problem we must frankly admit that we are acquiescing in the perpetuation of a capitalism, the foundation of which is waste. On this point I will again refer to Commissioner Landis' article where he says:

> . . . The intelligent use of our savings—its transmutation into capital goods—means, of course, conservation through wise expenditure. Such prevention as occurs here—and the opportunities for prevention are very large—results in a greater volume of savings being available for legitimate enterprise, with, perhaps, a resultant lower money rate compensated by a better general average of return. *Of the enormity of the waste that occurs here, we are for the first time beginning to get some knowledge.*[5]

Landis is referring more particularly to the fraudulent sale of securities as distinguished from the legitimate sale. But I am inclined to think that he would admit that if there is a need to protect the individual against the dishonest use of his savings, there is also a need to protect the group against the *unwise* use of their savings. Even though there may be no question of fraud involved, it does not follow that a particular enterprise is "legitimate" in the sense of economically useful.

In administering Article XI of the Ice Code we addressed ourselves to the problem of the economic usefulness of a particular investment. In seeking to restrain investments which appeared economically useless, we inevitably raised the question of whether a judgment could be reached which was sufficiently founded on factual evidence. It is my conviction that it was possible to secure such evidence in a sufficient number of instances to warrant continuation of the restrictive policy—and that in so far as this was possible a social purpose was served which is not served under a regime of unrestricted investment, particularly when it is my belief that the removal of governmental restrictions in the public interest will only promote the development of industry-imposed restrictions in the private interest.

[5] *Op. cit.*, pp. 265, 266. The italics are mine.

SOME PROBLEMS IN MEASURING PERFORMANCE OF INDUSTRIAL SALESMEN

BY ROSS M. CUNNINGHAM

THE analysis of some of the major problems faced in measuring performance of salesmen selling industrial products constitutes the objective of this study. Industrial products are defined for present purposes as those products sold to profit or non-profit enterprises for direct or indirect use in the production of further products or services.

Personal salesmanship is the most important selling method in marketing industrial products[1] and carries a relatively greater burden than in the marketing of products sold for use by ultimate consumers.[2] Accurate figures on the annual cost of this personal salesmanship are not available but the approximate amount for 1933 is estimated[3] to be $785,000,000. Continuously effective utilization of the industrial sales force is consequently an important factor in securing net profits fully satisfactory in amount and stability. The measurement of salesmen's performance is one of the essential duties of management in discharging a very serious responsibility.

Measures of Salesmen's Performance in Common Use. To determine the measures of salesmen's performance in common use it was necessary to conduct a field study among manufacturers of industrial products, since published material contributes but little of direct value. The study included intensive work over a period of fifteen months with a company whose problems are typical of those faced by many industrial enterprises, and less intensive work with a number of other concerns.[4] In addition to personal interviews, a mail questionnaire was

[1] *Harvard Business Reports*, Volume 9, United States Gutta Percha Paint Company, p. 61; Tarleton Machinery Company, p. 122; Greenock Hardware Company, p. 204; Artate Manufacturing Company, p. 215; Remsen Shoe Machinery Company, p. 308; Volume 6, Aran Manufacturing Company, p. 401; Elden Manufacturing Company, p. 428; Radams Chemical Company, p. 134; Paley Truck Company, p. 252.

[2] In 1931 the average proportions of total distribution costs represented by salesmen's expenses and advertising expenses for producers of industrial products and consumer products were as follows:

Expense	*10 Industrial Products Industries*	*19 Consumer Products Industries*
Salesmen's salaries and traveling expenses	34.3%	28.2%
Advertising and sales promotion expense	11.9	22.0

These percentages have been calculated from *An Analysis of Distribution Costs of 312 Manufacturers*, Association of National Advertisers, Inc., 1933, pp. 64–65, 106–107. The range of industrial products industry groups and consumer products industry groups included in the comparison are sufficiently representative for the purposes of this study.

[3] Salesmen's salaries and traveling expenses expressed as a percentage of sales for eight important industry groups producing industrial products reported in *An Analysis of Distribution Costs of 312 Manufacturers*, *supra*, pp. 106–107, have been applied to Value of Product figures for these industry groups taken from the 1933 *Census of Manufactures* (Summary by Industries, Table 1). Although value of products is not identical with sales, it is sufficiently accurate for an estimate of this type.

The industry groups included, arranged from high to low in estimated cost of personal salesmanship, are: iron and steel and their products, not including machinery; chemicals and allied products; machinery, not including transportation equipment; textiles; paper and allied products; non-ferrous metals; transportation equipment, air, land and water (minus motor vehicles, not including motorcycles); stone, clay and glass products.

[4] The names of these companies cannot be revealed, since all data were gathered on a confidential basis.

employed and satisfactory replies were received from thirty manufacturers of industrial products. The information reported on these questionnaires was useful chiefly in demonstrating the representative character of the data already secured by field trips. The types of industries included in the study were paper and paper products, machinery, cement, chemicals, flour, coal, glass, petroleum products, nonferrous metals, iron and steel products, construction materials, and textiles.

An analysis of the information secured from this study reveals twenty-six different measures of performance, ranging from such a specific index as the number of errors made in writing orders to the more general appraisal furnished by the total sales[5] obtained by a salesman. All measures may be logically arranged into two major classes: measures of accomplishments and measures of activities. Measures of accomplishments comprise the results of the salesman's selling activities and are commonly expressed in terms of sales, gross margins, and expenses. Exceptions, such as the number of new accounts secured, the number of orders taken from competitors, and others form a miscellaneous group. Measures of activities, the second major class of measures of performance, are concerned with the actual physical and mental activities of salesmen during the course of their selling work. Daily calls, days worked, and use of sales equipment may be mentioned as examples.

Study of both classes of measures of performance discloses that the average industrial company is using but few different types of measures. Data were secured from forty-seven companies, but only five measures, sales by salesmen, general appearance and personality, daily calls, salary (or salary plus traveling expense) as a percentage of sales, and gross margins by salesmen, were in use by eight or more companies.

A second conclusion drawn from the data secured is that measures of activities are considerably fewer in number than measures of accomplishments, and many of them are more loosely defined. This situation reflects the difficulty encountered, both during personal interviews and on questionnaires, in obtaining from sales executives an outline of the various activities involved in the selling tasks of their salesmen. In only four instances were comprehensive selling-task specifications secured. The tabulation of measures of performance is presented in Exhibit I.

Information was secured also upon standards of comparison used for the different measures. Judgments on quality of performance require not only the quantity of the particular accomplishment or activity under study, but also standards representing desirable levels of achievement. Two major classes of standards were in use, one based upon the previous performance of the individual salesman and the other upon comparisons

[5] The term "sales" is used variously to mean either volume of orders or billed shipments and may be expressed in dollars or in physical units of product. Where there is a lag of weeks or months between the time the order is received and the shipment made, as is true with some products manufactured to buyers' specifications, orders provide a more timely indication of salesmen's accomplishments than billed shipments. The sales of products characterized by rapid fluctuations in price are frequently more accurately reported in physical units than in dollars. Since examples of all of these situations may be found among manufacturers of industrial products it is not feasible to limit the term to any single one of these meanings.

between salesmen. In preparing these standards some executives made detailed studies of sales force operations, demand, business conditions, competition, productive capacity, and like factors while others relied largely on their personal intuition or hunch. Considerably less than one-fifth of the companies had clearly recognized the preparation of standards as a problem and given it careful study.

The small number of measures of performance used by most industrial companies, their rather incomplete character, especially for measures of activities, and the lack of careful attention to standards of comparison, suggest that there are significant problems to be faced in the development of comprehensive measures. The remainder of this analysis will be devoted to the definition and discussion of the most important of these problems.

EXHIBIT I

MEASURES OF SALESMEN'S PERFORMANCE USED BY 47 INDUSTRIAL COMPANIES

Arranged by Type and Number of Companies Using

Type of Measure	*Number of Companies Using*
I. Measures of accomplishments	
A. Measures utilizing volume of sales	
1. Sales by salesmen	38
2. Sales to new accounts	3
3. Accounts lost (sales during previous time period)	2
4. Sales by product lines	2
5. Number of sales related to number of calls	1
B. Measures utilizing gross margin*	
1. Gross margin secured (salesmen exercise some discretion in quoting prices)	8
2. Amounts of high and low gross margin products sold	4
C. Measures utilizing expense	
1. Salary, or salary plus traveling expense, related to sales or to units of products sold	9
2. Salary and traveling expenses plus a share of general sales overhead expense	1
3. Cost per day	1
4. Cost per call	1
D. Miscellaneous measures	
1. New accounts secured	6
2. Accounts lost	4
3. Orders secured	2
4. Net profit on sales	1
5. Number of customers sold compared to number of customers assigned	1
6. Orders taken from competitors	1
7. Towns not sold	1
II. Measures of activities	
A. General appearance, personality, tact, judgment, etc.	11
B. Daily calls	10
C. Days worked	6
D. Planning of work and conduct of interviews	6
E. Use of sales equipment	2
F. Number of errors in prices and terms of orders	2
G. Procurement of prospect lists for circularization	1
H. Number of quotations	1

* Gross margin is defined as the difference between manufacturing cost and selling price.

Characteristics of Desirable Measures of Performance. The characteristics of desirable measures of performance must be established as a beginning

step in approaching the problems of measuring performance. In the first place, the measure should show specifically where performance is weak, so that the sales executive may apply the necessary corrective action. A measure which reveals merely over-all weakness in performance is of little direct aid in improving the efficiency of individual salesmen. Second, the measure should be reasonably accurate. Absolute accuracy in a field where human contacts are so important is not possible nor is it necessary. Any narrowing of the area within which conjecture must otherwise operate is desirable. In the third place, the measure should be fair to salesmen. Fourth, timeliness is important, since weaknesses which are not disclosed promptly may result in serious losses in business and good will. Finally, the benefits yielded by the measure should at least equal the cost of its development and administration.

Measures of Accomplishments

The problems incident to the development and use of measures of accomplishments will be considered first, since these measures appear to be in more common use and are more clearly defined than measures of activities. As has already been indicated, measures of volume of sales, of gross margins, and of expenses, represent the three most frequently mentioned types of measures of accomplishments. The wide use of these measures is undoubtedly due partially to the intimate relation between the accomplishments which they include and net profits.

The quantity of salesmen's accomplishments is not difficult to determine. Records of sales by individual salesmen are usually compiled regularly for use in basic accounting records. Further classifications into sales by products and by customers are often prepared; when not available their compilation presents only the problem of adequate clerical assistance. Records of gross margins by salesmen, lines of products, and customers are not so commonly maintained as are sales records, but were found to be in use by several companies. The earnings and traveling expenses of salesmen represent sizable expenditures of cash and typically are carefully recorded.

In contrast with the determination of the quantity of salesmen's accomplishments, the preparation of adequate standards of comparison presents some rather complex problems. Major attention will be paid to standards for measures of volume of sales, because the salesman normally has a greater opportunity to affect the amounts of sales secured than he does the amounts of gross margins or expenses.

The volume of sales secured by a salesman, while obviously influenced by his selling activities, is also affected by three groups of variables: (1) the demand from the group of customers and prospects assigned to him,[6] (2) competition, and (3) the organization and policies of the company. These variables are outside the salesman's control; consequently their analysis is essential in studying the problems of preparing sales volume standards.

Demand. The demand available to a salesman originates from the customers and prospects to which he is assigned. It consists of the purchases during a period of time by all of these con-

[6] Customers and prospects are most commonly assigned to salesmen on a geographical basis, although specialization upon one or a few industries or upon certain sizes of concerns is occasionally practiced.

cerns of (1) company products, (2) competitors' products essentially similar in physical characteristics, and (3) products not essentially similar in physical characteristics but which are used for the same purposes.[7] The quantity of demand available to a salesman during a time period is a resultant of the forces of secular trends, cyclical fluctuations in general business, seasonal fluctuations and erratic events such as droughts, fires, floods, and wars. Without attempting a detailed analysis, it may be noted in passing that the incidence of these forces may vary widely among concerns in different industries. During recent depression years, for example, manufacturers of low-priced consumer necessities have maintained their volume of business and consequently their demand for industrial products at much higher levels than manufacturers of such items as factory equipment.

Certain of the concerns studied attempted to measure demand through the use of published data and through estimates of total annual consumption of customers and prospects reported by salesmen. The latter method appears to have proven satisfactory for those concerns that have trained salesmen to report information carefully and promptly,[8] but nevertheless has important limitations. First, it may not only be difficult for salesmen to determine accurately the total consumption of particular products by any company over a given period of time, but the amount of inaccuracy may vary between salesmen. Such variations invalidate comparisons of performance which have been based upon these estimates of demand. Second, there is the tendency for salesmen to report low figures because they fear that they will be expected to attain these volumes of sales. Finally, only the demand represented by the companies on which the salesman has actually called can be included. In new territories or in territories which have been only partially developed, special field investigators must be employed—necessarily an expensive process—or published material utilized.

Trade directories were found to be more widely utilized than any other single source among companies using published data to measure demand. A survey of the information contained in 108 directories of important industries, however, indicates that 41, or less than one-half, furnish information on the productive capacity of the enterprises listed.[9] Timely data on the proportion of productive capacity in use are provided by a much smaller number.[10] Since the purchases of customers

[7] A more detailed analysis of demand than can be attempted here would require a distinction between actual and potential demand. Actual demand may be defined as the sum of the purchases of concerns using either company products or those essentially similar in physical characteristics. Potential demand consists of purchases of products essentially dissimilar in physical characteristics to satisfy needs which could be met equally well by company products. Potential demand also includes instances in which needs exist but are unrealized; such instances may be of extreme importance when a new product is being introduced.

[8] *Harvard Business Reports*, Volume 6, Erven Leather Products Company, p. 3. This company is an example of the apparently successful use of salesmen's estimates as a measure of demand. Recent information indicates that they are still being used and have become increasingly reliable.

[9] *The Glass Factory Year Book and Directory* (American Glass Review, Pittsburgh, Pa.) and *Lockwood's Directory of the Paper and Allied Trades* (Lockwood Trade Journal Co., New York) are examples of publications which indicate productive capacities.

[10] *The American Medical Directory* (American Medical Association, Chicago, Ill.), among other types of information, gives lists of hospitals and sanatoriums showing both capacity and the number of beds occupied. *Baker's Weekly* (New York) supplies to concerns advertising in its publication a confidential directory of bakers with estimates of annual production.

and prospects correspond roughly to rates of operations, the limited availability of this information restricts seriously the value of this method of measuring demand. When information is lacking on the demand from individual enterprises an index composed of factors believed to bear a logical relation to demand is sometimes used as a method of measuring this variable. For those industrial products sold to all types of industries this method is useful,[11] but it has only a restricted value for products sold to certain industries.[12]

A study of methods at present used in measuring demand for industrial products leads to the conclusion that not only is the amount of probable error large, but that there are numerous situations in which even partially satisfactory information is lacking. In view of the important effect of the variable of demand upon the volume of sales secured by a salesman, better techniques for its qualitative and quantitative measurement are urgently needed; improvements in measuring performance of industrial salesmen will rest in large part upon the more satisfactory solution of this problem.

Competition. Elements of competition comprise a second set of variables affecting the volume of sales which a salesman can secure. In the absence of monopoly the demand from the customers and prospects assigned to him is supplied by the products of several producers who compete with one another primarily upon the bases of quality, price, and service. In addition, there is the factor of the skill with which marketing effort is planned and executed. This becomes of greatest importance when quality, price, and service are nearly equal for all suppliers, as is sometimes the case with standardized products. Concentration of effort by competitors' salesmen upon the most profitable types and sizes of customers and prospects, careful routing of calls to conserve time, knowledge of the idiosyncrasies of individual buyers, effective advertising and sales promotion work, and like factors may provide very keen competition in certain sales territories.

Gauging the competition faced by individual salesmen presents even greater difficulties than gauging demand. The number of orders lost to competitors, the share of demand supplied by competitors, and similar data are partially dependent upon the performance of the salesman and cannot properly be used in establishing standards for performance. Independent measures of intensity of competition found in use include number of salesmen,[13] number of plants, prices quoted, service offered, quality of

[11] The Census of Manufactures reports by counties the number of manufacturing plants, number of wage earners, number of salaried employees, wages paid, salaries, rated horsepower of equipment in the plant, cost of materials, value of materials, and value of products. A convenient compilation of these factors for 1929, expressed both in absolute amounts and as percentages of the totals for the entire country, is available in *Manufacturing Market Statistics*, Domestic Commerce Series No. 67, U.S. Department of Commerce. Similar compilations of 1931 or 1933 material are not as yet available from government sources.

[12] County data by specific industries are not available in complete form from the Census of Manufactures because of the danger of disclosing the amount of business done by individual enterprises. The lack of county information limits seriously the value of the index approach to the measurement of demand.

[13] Information that a New York City user of paper was ready to place a small contract brought salesmen of ten competitors to the purchasing agent's waiting room. An executive of one of these companies stated that substantial allowance was made for this keen competition in judging the sales accomplishments of their New York salesman.

products,[14] intercorporate relationships, reciprocal purchasing agreements, and personal friendships. These measures are necessarily inexact and require the judgment of an experienced sales executive for satisfactory use. Exact quantitative allowances for varying intensities of competition must rest upon further research.

Company Organization and Policies. Factors of company organization and policy constitute the third set of variables affecting the salesman's volume of sales. These factors include such variables as product design, distribution and price policies, the various types and amounts of selling methods used, the extent of control and supervision of salesmen, the form of sales organization, the quality of sales executive personnel, and the accuracy and speed of the order-filling system. Before comparisons between salesmen are made it is essential to know that they are operating under substantially similar conditions. If, for example, a salesman is stationed in a territory in which an intensive campaign of direct mail advertising is being conducted, he should find it easier to secure business than a salesman who is not receiving this supplementary aid. The problem of appraisal here, as with competition, at present rests largely upon the judgment of the sales executive, although approximate indications are provided by a comparison of the selling costs properly allocable to the territories. Possible inaccuracy is not a valid reason for failure to adjust for these variables; to ignore them increases the area of uncertainty.

In summary: demand, competition, and company organization and policies comprise three groups of variables which, together with the selling activities of the salesman, determine the volume of his sales accomplishments. All three must be measured before satisfactory standards can be prepared. Present efforts are distinctly limited by inadequate techniques of measurement; future progress depends largely upon improvements in these techniques.

To bring more clearly into perspective further characteristics of measures of sales volume accomplishments, it will be assumed that reasonably satisfactory methods of measuring these three groups of external variables are available; not to make this assumption would necessitate continual and confusing qualification.

The two basic starting points commonly used in preparing sales volume standards are the sales accomplishments of the salesman during a previous comparable time period and comparisons between salesmen. The former method is not accurate because previous performance may have been mediocre or poor.[15] Comparisons between salesmen may be made by

[14] The recognition and use of some of these indexes is illustrated by a paragraph from a report prepared by the market research department of a paper manufacturer: "The explanation for this decline in sales . . . seems due in part to severe competition. The writer, in reading over some of the office correspondence from customers and prospects, as well as call reports, noticed the great number of inquiries on price alone and if not on price alone, then on price and service time. When we consider that seven competitors are located in this salesmen's territory, and ten more scattered close to its borders, the extreme difficulty of obtaining business on the regular lines is obvious. Only on specialty products or on those papers in which we have a quality advantage, would major sales volume seem likely."

[15] Trends in performance over a period of years are revealed by this type of standard. A trend of increasing quality of performance indicates progressive betterment but cannot tell how much room for further improvement still exists. A declining trend is more significant in focusing attention upon a situation demanding remedy.

expressing sales as percentages of the estimated demands of the customers and prospects assigned to them. These percentages may then be adjusted for differences between salesmen in competition and company organization and policies, and the highest one selected as a standard.[16] Though involving somewhat greater complexity, standards for sales by products may be prepared in substantially similar fashion.

There are two assumptions inherent in this procedure which must be recognized. The first is that each salesman must be assigned to a group of customers and prospects large enough to keep him fully occupied, but not so large that he cannot devote proper attention to enterprises which are or might become profitable customers. If a salesman has a territory that is too small his sales will represent a percentage attainment of demand which overstates his ability; if the territory is too large the figure will understate his ability.

The second assumption is that the company sales force contains at least a few men of outstanding ability. If this is not the case, standards developed through comparison within the sales organization will perforce represent mediocre levels of performance. To check any given situation some external yardstick, such as that furnished by the experience of a competitive company, is theoretically desirable. Differences in products, selling methods and many other factors, however, not to mention the difficulty of securing reliable information, complicate seriously any attempts to make valid comparisons. Sufficiently satisfactory results will normally be obtained, therefore, by confining the analysis to the company sales force; a complete lack of able men is unlikely.

The analysis has so far been confined to measures of sales volume accomplishments. Brief consideration may now be given to measures of gross margins and of expenses.

Gross margin measures are useful only to the extent that salesmen are allowed discretion in quoting prices. In such instances records of gross margins by products, and the preparation of standards in a manner generally similar to that outlined above for measures of sales volume, may be useful in indicating approximately salesmen's bargaining ability. If, however, it is company policy to require executive approval for price variations, measures of gross margins lose significance because all of the factors determining gross margin are beyond the control of the salesmen.[17] Balance

[16] This procedure may be illustrated by a hypothetical case:

ITEM	*SALESMAN*			
	A	*B*	*C*	*D*
Annual demand	$250,000	$480,000	$600,000	$300,000
Annual sales	50,000	120,000	200,000	150,000
Ratio of sales to demand	20%	25%	33%	50%
Adjusted for differences in competition	25	20	30	40
Adjusted for differences in company organization and policies	30	15	35	30

Salesman C sets the standard because his ratio of sales to demand, after adjustment for differences in the variables of competition and company organization and policies, is the highest.

[17] A manufacturer of industrial textiles compiled records of gross margins by salesmen for a period of several months but discontinued them as uninformative because salesmen had no control over the basic factors. The most important of these factors are the extent to which products have specialty features and semi-monopoly characteristics, the distribution channels used, competition, and costs of production.

between high and low gross margin products is shown more directly by measures of sales by products than by total gross margins.[18]

Measures of expense were used both to indicate the reasonableness of expenses incurred, usually traveling expenses, and to appraise the general effectiveness of salesmen. Measures of traveling expense were often expressed as absolute amounts, and standards prepared for each salesman by making allowances for distances between customers and prospects, transportation facilities used, and like factors. Some companies had worked out these standards in detail and found them useful in controlling these expenses.

Measures of expense employed to indicate general performance of salesmen usually consisted of the sum of compensation and traveling expense expressed as a percentage of sales. Standards for these measures frequently consisted of comparisons between salesmen or with the average for the entire sales force. The percentage relationship of expenses to sales is a resultant of the absolute amounts of sales and expenses. The preparation of standards which will reveal accurately the quality of salesman's performance therefore assumes a knowledge of standards of volume of sales. If these are available, then appraisals of general effectiveness of performance can be made directly, and the expense percentage relationship is superfluous. This type of expense measure, therefore, does not appear to be of great significance in judging performance. It may, however, be useful as an approximate method of expense control in disclosing patently wasteful situations.

Evaluation of Measures of Accomplishments. To evaluate adequately measures of accomplishments they should be further considered in the light of the characteristics of desirable measures of performance. The discussion of problems incident to preparation of adequate standards has stressed the limitations on accuracy. The degree of probable inaccuracy varies most directly with the reliability of the data available for demand. Except in extreme cases, however, the presence of error is not a reason for abandoning efforts at measuring performance; rather does it mean that substantial tolerances must be observed in making final judgments.[19]

In the second place, measures of accomplishments, particularly those of volume of sales, do not indicate specifically where corrective action is needed. Total sales by salesmen, for example, is of little value except in showing approximately the relative abilities of various salesmen. This information may be useful in determining equitable compensation arrangements and in deciding upon promotions or demotions, but does not show directly the particulars in which personal selling effectiveness might be improved. If sales are classified according to products, types of customers, individual customers, or

[18] Standards for total gross margins which reflect the ability of the salesman in balancing sales effort between high and low gross margin products must be built up, step by step, from a consideration of the volume of demand for these products in each territory. When demand is known sales can be related directly to it and control is secured without the further step of a total gross margin figure.

[19] For example, in the hypothetical case given in a previous footnote, it would not be proper to say that salesman C is exactly five points better than A and D or that A and D are exactly equal in general ability. On the other hand there is no doubt that salesman B is substantially inferior to the others.

various combinations of these, the specific divisions in which the salesman is weak should theoretically be apparent. As soon as any attempt is made to break down total figures, however, the basic difficulty of a greater probable error appears, since a smaller number of cases is included,[20] and chance variations do not have so great an opportunity to offset one another. This difficulty is most serious for product sales to individual customers, the most useful classification in indicating where the performance of a salesman needs correction. This inverse relationship between number of cases and probable error constitutes an important limitation on all measures of accomplishments utilizing volume of sales or gross margins.

The requirements of timeliness and fairness to salesmen are met satisfactorily by measures of accomplishments. The cost of preparation may be substantial because of the measurement of demand, but the experience of companies who have attempted such measurements indicates that the benefits obtained, not only in more satisfactory measurement of salesmen's over-all performance but also in generally improved direction and planning of marketing effort, overbalance this cost.[21]

[20] The number of customers per salesman of industrial products is not large. In one concern studied the average number per salesman of customers who bought over $100 annually was 75, while the largest average number per salesman of customers in any one industry was 25. For other types of industries this average number was very small. To relate a salesman's sales to the demand represented by the customers and prospects in a particular industry, therefore, might present a seriously distorted result because of chance occurrences. These chance occurrences would tend to offset one another when a larger number of cases is included.

[21] Those companies studied that had made intelligent efforts to measure demand considered this work essential to sound planning of marketing effort. Other instances are detailed in *Harvard Business Reports*, Volume 9, Hamerton Company, p. 93; Kent Company, p. 181, and Vaiden Chemical Company, p. 51. Also see Fine, Charles A., "Continuous Control of Sales Effort Shows Sources of Waste Motion," *Class and Industrial Marketing*, May, 1930, p. 27.

Measures of Activities

Measures of activities comprise the second broad class of measures of salesmen's performance. These measures are of particular interest since they are directly concerned with specific activities in the salesmen's task and so are not subject to one of the chief weaknesses of measures of accomplishments.

The relatively fewer number of measures of activities used by industrial sales executives reflects their generally rather incomplete knowledge of salesmen's task specifications. To provide a logical foundation for the analysis of measures of activities, therefore, a task analysis has been prepared for one of the companies studied and is presented in Exhibit II. Although the major headings represent general types of activities performed by practically all industrial salesmen, the detailed listing of activities does not of course apply to all companies. Differences in products, markets, distribution policies, price policies, amount of planning done by the management, and other factors all affect to some degree the specific activities which the salesman performs. Consequently, a task analysis must be an individual project for each company. The techniques which have been used in such studies[22]

[22] The most intensive reported experience with studies of salesmen under actual conditions of work has been that of the Bureau of Personnel Research, Carnegie Institute of Technology, from 1916 to 1923. Some of the methods used are described by H. G. Kenagy and C. S. Yoakum in Chapters V and VII of *Selection and Training of Salesmen*. New York: McGraw-Hill Book Company, Inc., 1925.

EXHIBIT II

ANALYSIS OF THE SALESMAN'S TASK FOR A MANUFACTURER OF PAPER

I. Maintain and develop desirable character traits—for example: industry, initiative, tact, neatness, judgment, etc.

II. Plan work
- A. Follow instructions with regard to planning
- B. Do any of the following not covered completely by instructions:
  1. Secure names and locations of different types and sizes of customers and prospects within territory or class of trade
  2. Decide upon the most productive division of time and effort between:
     - Products handled
     - Markets served, and within these—
       - Between customers of different sizes
       - Between prospects of different sizes
  3. Make decisions as to order in which to call upon specific customers and prospects
  4. Learn names of individuals with authority to purchase and of those who may influence purchases
  5. Decide upon approach to be used
     - Secure advance knowledge of requirements
     - Secure advance knowledge of buyer's habits and idiosyncrasies

III. Make calls in accordance with plans

IV. Make interviews
- A. Follow instructions regarding interviews
- B. Secure access to buyer
- C. Discover his requirements if they are not already known
- D. Show how company products will satisfy these requirements (involves a thorough knowledge of the products in their various uses and an ability to present this information in intelligent and effective form)
- E. Quote price in accordance with instructions or send in data to company for estimate
- F. Meet objections:
  1. Arising from product and seller—
     - Price and terms of payment
     - Quality
     - Service

     } Knowledge of competitive products and sellers essential
  2. Arising from other factors—
     - Personal friendships and enmities
     - Characteristics of buyer
     - Previous and present environment
     - Training
     - Emotional make-up
     - Health, etc.
- G. Close sales or try to insure specification of company products at future purchases
- H. Perform any necessary service
- I. Build good will for company and lay foundation for future sales

V. Keep traveling expenses within reasonable limits

VI. Coöperate in the settlement of complaints when necessary
- A. Follow instructions regarding complaints
- B. Be prompt in reporting to company and informing customers of outcome when not handled directly from the home office
- C. When making adjustments personally, attempt to maintain and increase customer good will

VII. Keep records
- A. Follow instructions in regard to records
- B. Fill out and mail in call reports daily
  1. Showing customer name, location, type of business, success of call, annual consumption by products, etc.
  2. General comments on market conditions:
     - Improvement or decline in position of present customers
     - New prospects
     - Possible new uses for company products
     - Competition
       - Prices quoted
       - New products (enclose sample when possible)
  3. Ideas for new products or improvement in existing products

EXHIBIT II—(*Continued*)

C. Send in weekly expense reports
D. Keep record of sales to customers
   1. Personal sales and exact prices at which sales were made
   2. Mail order sales in territory and prices paid
   3. Price quotations made to prospects who did not buy

cannot be treated here except in broadest outline. It is sufficient to note that the study of salesmen in the field represents the only entirely satisfactory approach; the limitations of sales executives as sources of information have been amply indicated.

The selection of the salesmen to be studied constitutes an initial problem of prime importance since the inclusion of the entire sales force would be excessively expensive and time consuming. A further reason for careful selection is that standard ways of performing the various activities can be recorded during the same analysis.

To obtain at one time a complete task analysis and standards for various of the activities included logically implies that some appraisal of performance has been provided as sketched in the foregoing section on measures of accomplishments. While measures of accomplishments have serious deficiencies in revealing exact causes of poor performance, these deficiencies are unimportant in the selection of a group of salesmen whose general performance is outstanding. The value of a salesman to the company consists in the amount which his accomplishments contribute to net profit; a certain way of performing a necessary activity becomes a standard only if it can be shown that it produces more desirable accomplishments than some other way of performing the same activity. The careful study of selling activities of a selected group of salesmen provides a logical approach to the development of such standards.

The determination of the quantity of performance for many measures of activities presents a more serious problem than for measures of accomplishments. For the latter type of measures, figures of quantity of performance are typically readily available from the accounting records of the company. Detailed statistical records of the activities of salesmen, however, are not so commonly maintained. Many of the industrial companies studied secure currently information on the quantity of work performed by salesmen through written and personal contact. Written contact usually consists of correspondence of all types and call reports. Although not all companies required salesmen to prepare call reports, some of the largest and most profitable concerns were using these reports to yield large amounts of valuable and timely information.[23] Executives pointed out that careful planning of the report form was necessary to include only the most pertinent information and to minimize the time required for preparation. Emphasis was also placed upon the need for showing the salesman how this information was being used

[23] The types of information found among call reports studied were: name and address of concern, reason for failure to secure an interview (busy or out), type of call (personal or telephone), name of person interviewed, name of purchasing agent and of any other official who may be instrumental in purchasing, purpose of call, type of products used by customer or prospect, type of business, reasons for failure to sell, competitive products being used, quotations made, estimated yearly usage of products similar to those manufactured by the company, orders sold, judgment of desirability of a prospect, judgment of desirability of placing prospect on mailing list.

to aid him in order to gain wholehearted coöperation in full and accurate reporting.

Personal contact was found to range in extent from occasional conferences of salesmen with sales executives at the home office between trips, to the employment of full-time field supervisors who devoted their entire energies to traveling with a small group of salesmen. Office conferences are clearly limited in value as a means of disclosing quantity of work performed since they must rely in large measure upon the truthfulness and accuracy of memory of the salesman. The human tendency to make a good impression upon the employer is particularly likely to introduce serious distortion.

Occasional field trips by executives represent a somewhat better method of determining quantity of work, since the actual conduct of selling activities can be observed. Such contacts with salesmen, however, since they are often of short duration, may not represent a fair sample of the salesman's average performance. Furthermore, the infrequency of such trips may cause the salesman to be nervous and below usual effectiveness in his work.

The most satisfactory medium for securing information upon the quantity of certain of the activities in the salesman's task appears to be the field supervisor. While field supervisors are often used in sales organizations of manufacturers of consumer products, they have not been so commonly employed by manufacturers of industrial products; only three of the companies studied utilized this type of supervisory personnel. Such scanty experience as has been reported, however, suggests that the cost of such personnel may be more than balanced by benefits obtained.[24]

Two types of measures of activities deserve specific mention: those dealing with planning of work and those dealing with the sales interview. The decisions of the salesman in regard to types and sizes of customers and prospects on which to call, the frequency of calls, and the order in which calls are made, may have important effects upon his accomplishments and through these upon net profits. In one of the companies studied, for example, it was found that calls on customers of large size yielded a greater volume of sales than calls on small customers.[25] Providing that the gross margin on such sales is satisfactory and that incidental expenses are not increased, it is desirable that the salesman should devote his first energies to securing business from enterprises of this type. The ideal balancing of effort between types and sizes of customers and prospects implies a detailed knowledge of distribution costs, and an accuracy in measuring demand, which are not yet available. The action of several large manufacturers of industrial products, nevertheless, in rating customers and prospects according to desirability, and in assigning definite lists of these to salesmen, indicates that there is

[24] For instance, see Tosdal, H. R. "Bussman Manufacturing Company," *Problems in Sales Management.* New York: McGraw-Hill Book Co., Inc., 1931, p. 633.

[25] The analysis of average annual calls per customer size class for this company is as follows:

Annual sales per customer	Under $100	$101–300	$301–1,000	$1,001–2,000	$2,001–5,000	$5,001–10,000	$10,001–25,000	Over $25,000
Average Annual Calls	2.9	4.1	6.2	8.0	12.5	18.6	25.8	34.6

benefit to be gained even with present limited knowledge.[26] This particular division of measures of activities holds real promise in revealing instances where improper division of effort has been made. Furthermore, the quantity of work is easily and quickly ascertainable through call reports, and does not require frequent personal contact.

Measures relating to the sales interview present some of the greatest problems in connection with the measures of activites. Not only must quantity be disclosed through personal contact, preferably by field supervisors, but standards are more difficult to establish because of the predominant importance of the human element. If the product has specialty features, there is the possibility of developing a standard sales presentation.[27] If, however, the product has no distinguishing features, the human contact between seller and buyer assumes prime importance, and the possibility of developing standard presentations is definitely limited. In such instances one approach to the problem is that of measuring those character traits of salesmen which are commonly believed to be important in selling.

Although individual differences among buyers render entirely adequate standards impossible, a salesman may have certain character traits such as tact, voice, manners, and appearance, which provoke either generally pleasant or generally unpleasant reactions. The measurement of such character traits, however, is subjective in nature; and the degree of reliability attained tends to vary with the extent to which the impressions of the person making the appraisal are typical of the bulk of buyers and prospects reached by the salesman. Even if these impressions are representative, there is danger that they will be recorded in haphazard and incomplete form. The graphic rating scale[28] is a method of meeting this difficulty and was found to be in use by executives of four of the companies studied.

Conclusions

1. Measures of salesmen's performance used by industrial companies are typically incomplete in character, particularly those relating to the selling activities of salesmen. The problem of developing accurate standards of comparison has not been given adequate study.

2. Salesmen's accomplishments in volume of sales and gross margins, although affected by their selling operations, are also determined in important degree by the variables of demand, competition, and company organization and policies, which are not within their control. Adequate appraisal of salesmen's performance requires that these variables be measured in at least approximate fashion. In particular, better techniques in measuring demand for industrial products are urgently needed.

3. Measures of sales volume accomplishments are useful in indicating over-all weakness or strength in per-

[26] Tosdal, H. R., *op. cit.*, p. 219.

[27] Martz, J. A., "Do 'Canned Sales Talks' Pay?", *Class and Industrial Marketing*, January, 1932, p. 27.

[28] A graphic rating scale usually contains a list of character traits described by one or several phrases and provides opposite each one a horizontal line under which are further descriptive phrases indicating various degrees of possession of the specific trait. A discussion of graphic rating scales is given in Max Freyd's "An Appraisal of Relative Merits of Types of Rating Scales and Their Use." American Management Association, *General Management Series*, No. 38, 1926.

formance. They do not reveal accurately detailed phases of performance needing correction because too great a probable error is introduced by the smaller number of cases contained in sub-classifications of sales.

4. Measures of gross margin accomplishments are significant only when salesmen are allowed discretion in quoting prices. Measures of expense are most useful in controlling traveling expenses and as an approximate method of controlling sales force expense. They cannot reveal accurately generally good or poor performance.

5. Analyses of salesmen's tasks are essential to the development of satisfactory measures of activities. Very little study of this type has been undertaken by industrial sales executives.

6. Measures of activities indicate the specific activities in the salesman's task which need improvement. Measures dealing with planning of work promise substantial returns upon the effort expended. Measures of sales interviews are of vital significance but present great difficulties developing adequate standards and in determining the quantity of work done.

RECENT LITERATURE ON MONEY AND BANKING

BY JOSEPH B. HUBBARD

RECENT years have brought an extremely fruitful reëxamination of money and banking theory, which began prior to the world depression and has been very greatly stimulated by the international financial collapse. Recent difficulties have obviously served to emphasize the importance of well conceived banking and money policies and practices. With the increase of interest in these matters, a mass of popular discussion has grown up along with the more academic treatments of the subject. As a result, publications since the beginning of 1935 present an extremely varied aspect, ranging from a Harvard prize essay, through the works of professional financial writers, to popular propaganda for thorough revamping of our money and banking machinery—not to imply that suggestions for radical change have been confined to popular literature. Under these circumstances it was thought worth while to give attention to all these classes of writings in the present review.

Some of the literature, indeed, makes the impression of a story of new and stirring discovery, opening up to the reader a tale of exploitation as exciting as that of Captain Kidd's, or possibilities of immediate economic redemption through the control of our money and banking machinery. To the reviewer, the implication seems quite the reverse: it is merely that we have become conscious—suddenly perhaps—of the store of knowledge and experience built up during the years since the War by theorists, financial commentators of various kinds, students of the business cycle, statisticians, and, of outstanding importance, by the experience of the efforts of the central banks themselves. There is, indeed, little new in this body of facts and experiences; but we find ourselves suddenly equipped with this knowledge, and are now wondering how it will be applied and what it will do to us.

In the spirit of the times, many of the books are written from the point of view of control. In many instances, this basis for discussion produces difficulties because of lack of consideration of the underlying problem of using the financial machinery to affect other elements in the economic situation. Another general criticism may be advanced here. Sometimes too great preoccupation with a single point of view has led to neglect of the results of study and experience in other aspects of the field. The example given by the admirable linking of the money problem with the business cycle in Professor Beach's summary of British experience with the gold standard prior to the War might be more generally imitated.

Publications upon money and banking since the beginning of 1935 have been most numerous in the field of international finance and the gold standard. The discussion of such works is therefore undertaken first, followed by sections upon proposals for change in the money and banking system and upon inflation. This is followed by a section on general works, textbooks, and treatises on miscellaneous subjects,

to which only brief treatment could be given in the scope of this article. Books of general discussion upon the business cycle, even though taking the monetary point of view, are not included.

International Finance and the Gold Standard

Paul Einzig's volume on *World Finance, 1914–1935*[1] is the outstanding historical commentary upon financial developments. The author, Financial Editor of *The Financial News* (London), has published a number of briefer books, one of which is reviewed below, upon various current financial developments and problems, and in this, his twelfth book, draws together the results of his many years of close observation of international finance in a single volume, taking the opportunity to set forth certain modifications of his earlier views. The narrative and discussion is vigorous and penetrating throughout.

The discussion of international financial developments since the War is divided into four approximately equal parts: Inflation (embracing the war and post-war periods), Stabilization, Deflation, and Reflation. An important thesis of the book is that, since the War brought about an expansion of "fictitious wealth represented by public debt and other forms of capital without intrinsic value," whereas there was a decline in real wealth, a disproportion between the two was created. Monetary depreciation, such as occurred in Germany, is not a solution of the resulting difficulty, since "fictitious capital" must be built up again; moderate depreciation, as in France, Italy, Belgium, Portugal, and Czechoslovakia, helps. The author points out shrewdly that inflation itself, by the dislocation which it produces in international trade, is responsible in part for the growth of nationalism after the War.

The sections upon stabilization and deflation are treated in greater detail than those covered in the preceding section, and it is here that the author's wide experience and acute observation of international financial developments are displayed to the best advantage. His view is that the amount of gold and its maldistribution made stabilization impossible by the means actually used to attain that end, since there was no adequate degree of inflation achieved by the United States during the period. He holds that the undervaluation of the currencies in such countries as France and Belgium was correct, and that, in view of this undervaluation, the overvaluation by Great Britain, Czechoslovakia, and Italy contributed to the deflation; international financial coöperation, though it gave a needed respite, had little lasting result. He states effectively the dangers arising from foreign lending, floating balances (which he dubs "funk" money), and from transfer of funds to New York either for investment in the stock exchange boom or in stock exchange loans; and he criticizes anew the use of French funds for political purposes.

The narrative of the events beginning with the Wall Street collapse covers rapidly and graphically the slump in stocks, the Central European crisis, suspension of the gold standard in England, the subsequent history of sterling, the crisis in the United States, and the French difficulties. The position of silver, the collapse of reparations and international governmental debts, and the problem of commercial debts are also discussed in this section.

[1] Einzig, Paul, *World Finance, 1914–1935*. New York: The Macmillan Company, 1935. xvi + 382 pages. $3.00.

On deflation in general, the author concludes that it has an "arithmetic" limit, since it eventually leads to currency depreciation and sets up forces leading to higher prices and increased activity. On the remonetization of silver, he makes the pointed comment that if advocates of this policy did not also advocate an advance in its value, their propaganda would be more effective.

Reflation—the subject heading of the concluding section—is defined to embrace deliberate attempts to bring about recovery by monetary means and recovery influences generated from deflation by monetary depreciation. In Great Britain, the authorities have taken one reflationary step, namely, to keep money cheap; many of their actions have been deflationary. The deliberate depreciation of the dollar undertaken by the Roosevelt Administration is approved by the author because he believes that prices would have declined in the United States in the absence of such action. So long as the dollar was based on gold, he insists, it was utterly futile to expect any material and lasting rise in prices. Many will differ, as the reviewer does, from this opinion.

Einzig believes that future escape from such blunders as were committed during the years under discussion can be avoided, in general, only by economic planning in the usually accepted meaning of that term; without it, no monetary policy can produce satisfactory results. As a practical remedy at the present, a drastic devaluation of all currencies is proposed, "with a return to the gold standard on the understanding that the new parities will be subject to suspension or alteration in case of persistent pressure caused by fundamental disequilibrium."

The book is a keen commentary on events from the point of view of an observer of international financial developments thoroughly familiar with the day-to-day workings of the exchange markets, and in this lies its chief value. This point of view is highly specialized, and the valuable contribution which the author is thereby able to make to an understanding of the period carries with it the disadvantages always present when broad developments are regarded from a single point of view. Particularly, the reviewer felt an apparent lack of broad understanding of the results of recent study of the business cycle and of the complicated field of international commodity price adjustments, upon which conclusions as broad as those drawn by the author must be based.

Monetary Policy and Economic Stabilization: A Study of the Gold Standard, by Arthur D. Gayer, is a comprehensive and well balanced treatment of the gold standard.[2] More broadly, it is a consideration of instability from the viewpoint of the money mechanism; the author does not believe that the problem can be solved through that mechanism alone. The complexity of the considerations involved becomes evident as the discussion proceeds, but the author has contributed markedly to the clarification of the points at issue, and has defined his conclusions with some precision. A detailed index adds to the usefulness of the book.

A main thesis of the discussion is the incompatibility between monetary policy, directed to obtain internal stability, and the working of the gold standard, since the gold standard "de-

[2] Gayer, Arthur D., *Monetary Policy and Economic Stabilization: A Study of the Gold Standard*. New York: The Macmillan Company, 1935. xiii + 288 pp. $3.00.

mands" that gold movements be allowed to have their full effects, whereas central banks, desirous of maintaining stability of prices, attempt to counteract these movements. Examination is made of the hypothesis that, to keep prices stable, a given percentage increase in gold supply is necessary. The validity of Cassel's and Kitchin's conclusions on this point is questioned, largely by the method of citing their critics. The conclusion of this discussion is that an immediate danger is a superabundance of gold; a more remote danger, a gold shortage. The evidence hardly points, in the author's opinion, to the conclusion that the recent price collapse arose from a shortage of gold, through maldistribution of gold contributed to it.

By pointing out the varying relationships between gold movements and price developments among the different countries, the author emphasizes the failure of the gold standard to bring about an international adjustment in the years 1925–1929. In the United States prices should have risen according to gold standard logic; if there was to be no inflation they should have fallen. The best treatment, to the reviewer's knowledge, of the question "Was there inflation in the United States in the late twenties?" is given in this discussion. The author's conclusion is that profits of the period were excessive and hence there was inflation. Thus he is able to state that the United States received gold and inflated; France received gold and did not; England lost gold and did not contract. The gold standard did not serve to keep the countries in adjustment.

We may summarize the author's critique of the gold standard thus: (1) It has not worked according to expectation in recent years, (2) it involves a conflict of interest between external stability and internal stability, to which at least in part is attributable its failure to function properly, and (3) internal readjustment to the demands of the gold standard has been rendered increasingly difficult because of the growing inflexibility of certain aspects in the economic structure of the individual nations. These are real difficulties, not to be ignored; but the case for the gold standard is not to be dismissed lightly. Its advocates urge that exchange stability is a real boon, and this point the experience of recent years has served to emphasize. There is no doubt that it has greatly aided the development of trade and lending in the past fifty years. The gold standard, moreover, furnishes an objective restraint against an unlimited manufacture of a "costless" means of payment. The author concludes that the conflict between internal and external considerations does not constitute a conclusive case against the international gold standard because it has demonstrated many advantages in other directions, but that the defects of the gold standard are nevertheless of a very serious order.

After consideration is given to a number of proposals for change, the author uses Keynes as the basis for suggestions for the best compromise to secure simultaneously the advantages of independent and international monetary standards. He accepts a 5% spread between gold buying and selling points, but as involving sacrifice from the foreign trade point of view. Movable parities would affect the international movements of short term funds, and would involve certain political dangers; but, if a reformed, fully international gold standard, so managed by the central banks to preserve

relative stability in the value of gold, cannot be attained, a semi-autonomous gold standard with movable parities may be the best choice. This would be a managed standard, and there should be certain supplementary measures of control, especially public works. Monetary policy should aim, not at constant prices, but at reasonable stability with fluctuations held within moderate limits. If supplementary devices effected a response in wage levels, no serious maladjustments should occur between savings and investment; cyclical fluctuations would be moderate and on the whole beneficial.

In *The Future of Gold*, Paul Einzig addresses himself to the narrow question of the short- and long-term prospects of the price of gold.[3] As was to be expected, he has not used the complexity of circumstances surrounding gold as an excuse to avoid a conclusion. This conclusion (written in October, 1934) was that, following a very moderate rise, the short-time tendency of the price of gold would be downward, and the long-time tendency would be toward a higher price than that reached in the past.

A useful contribution of the book lies in its marshalling of the facts which make inevitable the maintenance of the gold standard despite such legislative measures as may be adopted to modify it, and must be given consideration by any protagonist of paper currencies. These facts may be grouped in four categories. The first relates to the "instinct" of mankind to resort to gold in times of disturbed economic conditions. The author discusses both gold hoarding and the more sophisticated investment in gold mining shares, and points out the peculiar circumstances surrounding the dishoarding of gold in England and India. The second category relates to the advantage of gold internationally. Gold is the one commodity which all nations are willing to receive in unlimited amounts from other nations, and thus is free from the difficulties of payment met by other commodities in tariffs and other trade restrictions. Thus the regard which all people have for gold makes it a most useful tool to mankind.

The third category relates to the technical difficulties of outright abandonment of the gold standard. What would be done with the gold? Coining it and paying it out would involve currency difficulties, since the gold would be preferred by the public, especially in difficult times, to the government's managed currency. Furthermore, private reserves of gold might be built up as a basis of credit. On the other hand, we cannot imagine the practical Dutchman, Frenchman, American, or Englishman merely destroying the gold by such a procedure as sinking the metal in the sea. A fourth category is the vested interest of gold producing countries, or possessors of large gold stocks, in the maintenance of the gold standard.

A distinct contribution to our knowledge of gold movements and to the theoretical questions involved is made by W. Edwards Beach in his *British International Gold Movements and Banking Policy, 1881–1913*.[4] The period covered was one relatively free from disturbance (except for the Boer War), and so reveals the gold standard under more normal conditions than those of recent years. It throws light, however,

[3] Einzig, Paul, *The Future of Gold*. New York: The Macmillan Company, 1935. x + 135 pages. $2.00.

[4] Beach, W. Edwards, *British International Gold Movements and Banking Policy, 1881–1913*. Cambridge: Harvard University Press, 1935. xiv + 218 pp. $2.50.

on the present situation, since the gold standard in pre-war England was not automatic and was influenced, especially after 1900, by the conditions which present difficulty today: the presence of foreign balances, competition for export markets, rigidity in the price and wage structure, and the growth of high tariffs. The book is not easy reading, but will repay study to anyone wishing to obtain a compact presentation of the problem of the gold standard based upon a careful and competent consideration of the facts and upon wide acquaintance with both classical and more recent theory.

Comparison of actual developments with accepted theory is the method followed, a method which is made possible by the existence of certain banking statistics, the development of methods of statistical analysis of business series over an interval of time, and, in particular, the formulation of general measures of business cycles in England. The earlier theory was not an explanation of gold movements over as short a period as the business cycle, and part of the task of Beach and other writers has been to examine the validity of these theories, and their possible modification, in respect to cyclical movements.

The second chapter of the book begins with an examination of the Ricardian, classical, and neoclassical theories, and Hawtrey's application of these theories to the business cycle. Other theories are included, among them Angell's theory of the transfer of purchasing power. The bulk of the volume is devoted to a statistical examination of the experiences of the years 1881–1913, and a concluding chapter on "Gold Movements and Banking Policy" presents certain of the major conclusions of the author. An appendix presents briefly the experience of the United States for the years 1896–1913.

By the beginning of the period 1881–1913, the Bank of England had learned to alter the discount rate systematically. It accepted tacitly the doctrine that changes in money rates would ultimately affect commodity prices, production, and the balance of trade. Open-market operations were used to tighten the money market, but the author found no evidence of purchases to ease it during periods of depression. The geographical structure of bank rates throughout the country tended to reënforce the effectiveness of the bank rate. The author notes that the usually scanty reserves of the Bank of England forced it to take energetic and drastic action when reserves were threatened. To the extent that it was desirable to curb a period of prosperity early to avoid severe depression, scanty gold reserves were an advantage; more gold, however, had to be held when foreign balances increased, in order that return of balances should not upset the local credit situation.

Beginning with the outstanding fact revealed in the statistical analysis—that cyclical movements of gold, consisting of increasing imports during prosperity and increasing exports during depression—took place in England (and the United States as well), the author applies the various explanations or theories roughly in the order of the chief influences acting to produce or countervail such cyclical movements: commodity prices, short-term capital movements (when banking reserves were restricted), internal currency requirements, and foreign lending. Commodity prices the author considers the key of the classical theory; this theory he concedes may be used to explain the

observed movements if there was a high relative degree of *insensitiveness* in the prices of the country considered. Even under such circumstances, he questions this view, and finds a more adequate explanation in movements of short-term balances as determined by interest rates.[5] They are likely to be sensitive to discount rate changes, a rise bringing in such short-term balances and consequently attracting gold, thus tending to prolong the period of prosperity in the country receiving it. The low rates of depression lead to a withdrawal of foreign funds. In England and the United States in the pre-war years, the existence of little slack in bank reserves made foreign balances very important, because the drawing down of reserves in prosperity occurred early. Currency requirements tended to tighten money markets at the same time. During depression the return of cash eased the money market, with consequent withdrawal of foreign balances.

In the concluding paragraphs, the author offers certain practical suggestions in accord with his analysis. Large excess reserves of gold should be held by countries which otherwise would have to draw specie from the rest of the world during a period of business prosperity. Central banks may have to resort to qualitative measures or rationing of credit; possible rate control to raise *interior* rates first, as possible in the United States, might prove effective, because it would not draw foreign funds to the central money market. Coöperation of central banks would help, though a real difficulty would arise in differences in national situations and viewpoints, particularly when large domestic rate changes appeared essential. Finally, the author gives with approval Keynes' suggestion that larger variations in the buying and selling prices of gold be established by central banks, combined with futures exchange markets under central bank control. Unless, in a world of rigid internal price structures, a mechanism is devised to make short-term balances more insensitive to rate changes, "the international gold standard seems likely to prove effective only over short periods, and to be subject to breakdown at frequent intervals."

Coming after the rapid changes in international finance during recent years, publication of *The International Money Markets*, by Madden and Nadler, is well timed.[6] The authors have produced a much needed and useful summary of the organization of the chief money markets of the world, treating the subject with sufficient detail and comprehensiveness to make the book of value outside the classroom. The markets studied are New York, London, Paris, Berlin, Amsterdam, and Zürich. The chapters on the Swiss market are written by Ernest Schwarzenbach. An extensive bibliography adds to the usefulness of the book.

The detailed treatment is preceded by a 130-page analysis of conditions of the international money markets generally. This contains a brief and effective treatment of gold and the rôle of the gold standard, pointing out the large extent to which the reasons for this collapse lay outside the standard itself. The authors maintain that

[5] The author does not accept the possible explanation that interest rates affect prices promptly enough to be an explanation of the observed phenomena. This view would imply close enough correspondence between the cycles of various countries to render cyclical flows of gold "not very marked," and his findings of fact are the reverse.

[6] Madden, John T. and Nadler, Marcus, *The International Money Markets*. New York: Prentice-Hall, Inc., 1935. xiii + 548 pp. $5.00.

there was no shortage of gold, and at present see danger in the possibilities of credit inflation on the basis of gold reserves, particularly if further devaluations occur.

The report of the Royal Institute of International Affairs on *The Future of Monetary Policy* sets as its aim "providing a background of established fact and of current theory for those readers who desire to follow in some detail the points at issue in regard to a highly controversial subject."[7] The result is a comprehensive summary of the various aspects of the problem facing Great Britain; a statement of the objectives of monetary policy; a discussion of the controversial points involved, including appraisal of the validity of the reasoning advanced and an expression of the conclusions reached by the group studying the problem; and suggestions for certain practical measures. The report will be found of value from many different points of view: as an introduction to the subject, as a critique of certain of the premises upon which current controversy is based, as a statement of the devices which have been used or might be available for money management. Its criticism of certain popular fallacies is penetrating and convincing. A certain diffuseness and consequent condensation of statement in detail is perhaps inevitable from the breadth of the field covered, but the report does succeed in a measure in unifying the diverse considerations involved.

The problem of international monetary standards is frequently stated as a sharp antithesis: fixed parities for national currencies and the resulting stable exchanges (under the gold standard) are not compatible with the internal stability of the nations involved. We must make a choice between stable exchanges and stable prices; money policy, if aimed at both, cannot be successful. The report recurs frequently to this hypothesis. While admitting that at times a real dilemma may be presented, it points out that the two aims are not absolute alternatives, since the one is not fully attainable without a substantial measure of the other. Internal "continuity of values" (a phrase much superior to the abused term "stability" as applied to a national economy) is set as the goal for the monetary system which should be devised to prevent such "booms" and "slumps" as have characterized recent years. A break in the "continuity of values" will disrupt any international fixing of the exchanges; on the other hand, if the exchanges are upset, the internal economy of a nation will suffer as foreign trade declines. Monetary policy must aim to harmonize the two as much as possible; the possibilities of combining them are much greater than often supposed.

Stabilization of exchange through the establishment of new parities, the report concludes, should not be undertaken at once. It regards the determination of correct parities difficult, and Cassel's analysis of "purchasing power parities" as not furnishing a definitive basis. Much attention is given to the problem of possible later variations of these parities. The difficulties presented by such variations are considered, but the conclusion (dissented from by a number of the group preparing the report) is that such variations could be used if reflecting real changes in the economic positions of the countries. They should not be

[7] *The Future of Monetary Policy*, a Report on International Monetary Problems by a Group of the Royal Institute of International Affairs. New York: Oxford University Press, 1935. ix + 219 pp. $4.00.

made unilaterally, since action by single nations without agreement by others might lead to difficulties, possibly competitive debasement. Gold should be used only in international transactions; it should not form backing for notes—or, at least, if some is used for that purpose, there should be an adequate supply of free gold. It should be prevented from falling into the hands of the individual by making transfers only on the condition that this gold went to other central banks.

Frank advocacy of abandonment of the gold standard internationally and the establishment of national paper currencies is set forth in Major Angas' book, *The Problems of the Foreign Exchanges*.[8] This is the second book of this tenor, the preceding one (*The Problems of Money*) advancing the argument from the point of view of the individual nation. The book is an easily read, popular exposition, written with obvious sincerity.

After a brief and effective elementary discussion of foreign trade and foreign exchange, the author discusses the workings of the gold standard and of paper exchanges, concluding this section with a chapter on the difficulties of the return to gold. The basis is thus laid for the third section of the book, which presents and analyzes the arguments of those who (a) favor the gold standard and (b) attack paper currency. The concluding section is on "Practical Problems." Here emphasis is particularly laid upon the difficulties of restabilization, which arise from need of international agreement, American money policy, the war debt, gold redistribution, and, in particular, the correct adjustment of national parities.

[8] Angas, L. L. B., *The Problems of the Foreign Exchanges*. New York: Aldred A. Knopf, Inc., 1935. xiv + 316 pp. $3.50.

The greatest danger of international competitive debasement lies, in the author's opinion, in the attempt to establish a variable gold standard by the different nations. He points out that successive gold devaluations might lead to progressive inflation as bank reserves of the various nations were thereby increased and bank-credit expansion occurred. For the future, no uniform solution on the part of the various nations is to be expected; some may establish rigid gold standards, others variable gold standards, some may put in force import controls, the measures emphasizing sometimes one aspect of the problem, sometimes another. Competitive gold devaluation may be tried, only to be abandoned, with the likelihood that managed paper will creep in—a conclusion which seems to give too little weight to the power of the gold tradition to produce the opposite outcome. The author advances and criticizes various proposals, among them the establishment of a wider spread between the points at which gold would be imported and exported. This he regards favorably, as did Beach a similar proposal by Keynes.

The substance of Angas' argument may be briefly stated: The problem of the foreign exchanges is not merely one of maintaining stable exchanges. Exchange rates act as a corrector of "haphazard" inequalities of imports and exports. This correction may be given either by fluctuating exchanges or fluctuating internal prices. Choice should be internal price stability, attainable through a managed currency, and therefore the exchanges should be cut loose from the gold standard. Paper permits internal stability, but does not ensure it. We have seen the attention which the Royal Institute

gives to this clear cut antithesis (p. 120). The gold standard proved unable to meet the strain of economic catastrophe arising from maladjustments to an important degree unconnected with it; yet it seems inherent in the author's reasoning to regard the gold standard as the cause of its own collapse.

Proposals for Change

Advocacy of volume-controlled inconvertible paper money, such as that of Major Angas, is not surprising at this time, and finds another proponent in Mr. Soddy. It seems disappointing, however, that with all the accumulation of knowledge and experience with credit policy, and the clear possibility of its fruition into something much superior to past credit systems, there should appear advocates of an old heresy with a clearly discreditable history. The remedy which has often failed will be tried again when we have just come into the knowledge of other remedies of good promise!

Differences of opinion in the matter are obviously sharp and strongly held; and the reviewer finds himself unable to pass over this controversy without an indication of his own position and of the weakness which he regards as determinative in the paper money argument. In the reviewer's opinion, the proponents of paper money tend to lose sight of two considerations which are of fundamental importance, and must be met squarely and handled adequately and at length if their argument is to prove convincing. The first is that convertibility is a protection of the individual against the government; without it, he has just one less weapon in time of catastrophe. And, as generations go, governments are short lived and catastrophes frequent, so that the instinct of the individual to protect himself (however poor the means) against them is strong and persistent. Indeed, the ability of the individual to survive may well determine the welfare of the nation. The second is the political risk involved in any money management, but probably greatest when currency can be increased without reference to a gold reserve. Inconvertible paper currencies, it is true, have not always brought ruin, but the instances have occurred when the gold standard has been "honored in the breach," as in England today, and not discarded. Even if there is, to quote Angas, "no need for a paper system to be managed *idiotically*, as some gold protagonists see fit to suggest," nevertheless there is reason to fear that tremendous pressure will be exerted by politically powerful groups of the community to bring about higher and ever higher prices. Further general appraisal of the question will not be attempted.

In addition to Major Angas' volume, two books urging radical change in the money system have appeared in 1935: *The Role of Money* by Frederick Soddy[9] and *100% Money* by Irving Fisher.[10] The first of these—which is from the British point of view—purports to give a broad analysis of money and banking, and puts forward certain far reaching proposals in brief form; the author states that it is his intention to supply a guide to statesmen. Professor Fisher makes a detailed, concrete proposal for legislation in the United States, ac-

[9] Soddy, Frederick, *The Role of Money*. New York: Harcourt, Brace and Company, 1935. x + 214 pp. $2.00.

[10] Fisher, Irving, *100% Money*. New York: The Adelphi Company, 1935. 212 pp. $2.50.

companied by an analysis to support his proposal.

One of Soddy's proposals is the holding of currency by the banks in an amount equal to their demand deposits; since Fisher offers a similar proposal in more detailed form, treated later in this review, this matter will not be discussed here. The substance of Soddy's more general proposals is the issue of a national currency divorced from gold, which shall be varied in amount for the purpose of maintaining stable prices. This money is to take the form of a receipt rather than a promise to pay, to be inconvertible, and full legal tender. The price level is to be judged on the basis of a cost-of-living index for an average middle class family computed by a statistical bureau. Foreign exchanges are to be allowed to seek their own level, but under government supervision.

An important basis of the author's argument, however, is that the banks purposefully cause the business cycle by varying the amount of money (deposits) through their lending policies, in particular profiting by the distress arising from the deflation which they have caused by reducing loans. It is not necessary to make a blanket defense of the banks to remark that they obviously profited greatly from the period of prosperity of the twenties and suffered greatly from the depression, or that the level of interest rates forms the determining factor in their earnings. To put forth Soddy's naïve interpretation of the business cycle and the banks' relation to it is to overlook the real complexity of both problems.

As indicated above, the main proposal of Professor Fisher's plan is to place a 100% reserve in currency behind the demand deposits of the banks. Many of the ideas embodied in his *100% Money* were drawn, according to his statement, from a memorandum of a group at the University of Chicago, embracing among others Professors H. C. Simons, F. H. Knight, Garfield V. Cox, L. W. Mints, Henry Schultz, and Paul H. Douglas.

The currency necessary for the increase in reserves to 100% is to be printed under the jurisdiction of a Currency Commission, and to be given the banks in payment for such earning assets as United States government bonds. The result, it may be pointed out, would be an immobilization of a considerable portion of the banking system's assets; the immediate effect would be restrictive. The banks are to be departmentalized, or separated into two kinds, on the basis of the division between demand and time deposits; demand deposits only are to be covered by the 100% reserve, and are to form the checking department of the bank. The Currency Commission notes and other cash are to be held in this department of the bank or on demand in some nearby reserve bank. The other department (or bank) would perform the lending function; its deposits would be time deposits, against which no checks would be drawn. As deposits (currency or checks on checking department) are made in the lending-savings department, these would be transferred to the credit of the latter in the checking department; loans would be extended by the lending-savings department of the bank by a check upon the checking department.

The purpose of the plan is to stabilize currency and demand deposits. The plan does not contemplate simply freezing deposits plus circulation at present amounts; the Commission is to have at its discretion purchase or sale of government bonds (and other securi-

ties) whereby it may pay out of its "Commission Currency" and hence expand checking accounts or the reverse. The author contemplates that, under the 100% plan, there would be a tendency to increase the issue of "Commission Currency" to maintain a steady price level against the cheapening of costs resulting from technical progress.

It is clear from the outline of the plan that the issues raised are highly controversial, and a reviewer, short of entering the controversy itself, can do no more than indicate certain difficulties. A premise of the reasoning is that the business cycle is chiefly a monetary phenomenon in which the fluctuations of demand deposits play a major rôle; corollaries are that it is desirable to stop such variation, in so far as it is cyclical, and that the secular trend of deposits plus currency be governed through emission or retirement of government currency on the basis of the price level. Each step in this argument presents difficulties; in particular it may be pointed out that official attempts to influence business developments through credit measures have had some degree of success in producing variations in deposits, and the extent to which they have failed to determine business developments at least raises the question of the efficacy of Fisher's proposal. The division between "time" and "demand" deposits upon which the scheme hinges has proved difficult since first introduced by the Federal Reserve legislation. It would itself be modified by putting the plan into effect; true savings, particularly in times of loss of confidence, would flee from time into demand deposits, concentrating runs on the lending-saving institutions. Forcing a bank to keep large quantities of uncirculated money in its vaults has an obvious uselessness quite different from the maintenance of reserves in the usual manner. Lack of realism is again felt in such statements as "it is not a healthy situation when banks [the banks' officers] lend money without being sure that there is already money to lend" (p. 122); "the first Act of the Currency Commission would be to raise the price level" (p. 123); "they [the bankers] are blissfully unaware of the risks they carry" (p. 154). Finally, the author states "The question is whether we prefer the present irresponsible management or a responsible management with the definite object of stabilization" (p. 195). We may legitimately raise the question of whether management by bankers or a government board is the more "responsible."

Inflation

Whether or not inflation is at root a monetary matter, it seems well to consider publications on this subject at this point. Four treatises have appeared since the beginning of the year. Three of these are in pamphlet form. *Inflation Ahead*[11] by Kiplinger and Shelton has the virtue of compactness and comprehensiveness; the reader is presented with all the chief aspects of inflation as it may affect him in his business and investments. The emphasis is upon possible effects and the way the individual may protect himself, but the reasons supporting the current view that inflation is inevitable are positively and forcibly stated. One does not have to agree with all the authors' forecasts in order to approve the wisdom of considering the circumstances stressed. The pamphlet of Harwood and Fer-

[11] Kiplinger, W. M. and Shelton, Frederick, *Inflation Ahead!* New York: Simon & Schuster, 1935. 42 pp. $1.00.

guson on *Inflation*[12] treats the subject from the point of view of currency and bank credit, presenting in the final chapter an index of inflation based upon banking figures. Varieties of inflation are discussed, and the experiences of Germany, France, and the United States are each given a chapter. The third pamphlet is Angas' *The Boom Begins*.[13] It gives the author's monetary views, as expressed in other of his writings (as in *The Problem of the Exchanges*, reviewed above) and appraises the effect of the Administration's measures upon American conditions. As the name of the pamphlet indicates, he believes that inflation "is bound to catch." The author sees the danger of inflation getting out of control, and points to the long delay in its getting under way as increasing that danger, but develops the thesis that inflations can be stopped.

Willis and Chapman's volume, *The Economics of Inflation*,[14] consists of two parts of about equal length: a general analysis and a number of papers contributed by members of the Banking Seminar of the School of Business, Columbia University. The method of presentation consists of an examination of the varied ideas which appear in political, journalistic, and economic discussion under the term "inflation." This approach has the advantage of giving a realistic impression of the multifold aspects of the subject.

Much attention is given to the question: do money and credit conditions cause inflation? The answer is no, not necessarily; but to avoid possible misunderstanding, must be given in the authors' words, as they appear at the beginning of the fourth chapter:

> In the foregoing chapters, emphasis has been placed upon the thought that inflation is essentially a process of wealth transference or of the regrouping of economic classes. In pursuance of this thought, it has been insisted that there is no necessary connection between the mechanism of money and banking and the forces of inflation, although it is usually true that the mechanism of money and banking is employed in effecting, or making operative, an inflation movement.[15]

The problem is rather that of the production and distribution of goods, in the economic sense of the terms. Readjustments of prices and of banking and credit bases, often thought of as the cause or embodiment of inflation, are mere readjustments resulting from it and made visible in the credit mechanism. Changes in commodity prices may or may not accompany inflation, and *vice versa*. The authors point out what may be termed the indeterminate nature of many of the inflationary devices commonly urged; namely, that the technique which at one time may produce inflation at another time may not. Currency debasement or depreciation is a case in point; it may have practically no results, or it may raise prices, usually by merely giving effect to forces already at work. This fact is frequently overlooked in current discussion, and clearly deserves the emphasis given it. The point of view of the book involves criticism of money management if applied to effect changes in other economic spheres; the authors urge that the two ideas be separated, and that planning not be identified with money and credit adjustments. There are limitations to what can be accom-

[12] Harwood, E. C. and Ferguson, D. G., *Inflation*. Cambridge: American Institute of Economic Research, 1935. 64 pp. $1.00.

[13] Angas, L. L. B., *The Boom Begins*. New York: Simon & Schuster, 1935. 96 pp. $2.00.

[14] Willis, H. Parker and Chapman, J. M., *The Economics of Inflation*. New York: Columbia University Press, 1935. xi + 443 pp. $1.50.

[15] Written by H. Parker Willis.

plished by money management, and planning, if confined to such means, has distinct weakness.

The essays deal with inflation in relation to distribution of income, overproduction, cost of production, securities, the stock market, bank portfolios, public works, foreign trade, the structure of production, and price reflation. The first of them, "Inflation in Current Economic Literature," is a useful critique of recent theory on the subject.

Textbooks and General Works

Of the textbooks published recently, two—James, *The Economics of Money, Credit and Banking*,[16] and White, *Money and Banking*[17]—are revised editions of earlier works. These texts reflect strikingly the results of recent money and banking developments and of recent elaboration of monetary theory, and contain much on today's problems which, in the present atmosphere of controversy, the general reader will find helpful and interesting. The second book devotes much attention to the history of banking and to monetary developments in the United States. The third text is a translation of Ludwig von Mises' *The Theory of Money and Credit*.[18] The basis of the translation is the second German edition, issued in 1924. The author has contributed a special introduction outlining his views on problems which have emerged since that date. The translation was made by H. E. Batson, of the London School of Economics, and is prefaced by a short introduction by Lionel Robbins. The book is a systematic treatment of money theory, long a standard text in Europe.

Whether Bernstein's *Money and the Economic System*[19] was intended for class use is not obvious from the book; it is a general treatment of the subject by a critic of the gold standard and an advocate of money management. In his view, the functions of money embrace full employment of productive resources, supply of goods in right proportions, management of business in the hands of the most efficient, distribution of national income to maintain economic equilibrium, and apportionment of national income between consumption and investment. A money accomplishing these ends he regards as satisfactory, whether gold or paper, whether of constant or variable purchasing power. It is a clear result of this approach that a section be given to commodity price movements and this subject should be recurred to at some length in the discussion of monetary problems. The concluding section deals with monetary management, including a chapter of suggestions for such management in the United States. The book has value as a positive statement of the position of an advocate of money management, but is not a systematic reply to critics.

Two attempts to popularize the principles of money and banking are included in recent banking literature. The most general of these is the second edition of *A Primer of Money*,[20] by

[16] James, F. C., *The Economics of Money, Credit, and Banking*. Second edition. New York: The Ronald Press Company, 1935. xvii + 678 pp. $4.00.

[17] White, Horace, *Money and Banking*. Revised and enlarged by Charles S. Tippetts and Lewis A. Froman. Boston: Ginn and Company, 1935. xiv + 808 pp. $3.50.

[18] von Mises, Ludwig, *The Theory of Money and Credit*. Translated from the German by H. E. Batson. New York: Harcourt Brace and Company, Inc., 1935. 445 pp. $4.50.

[19] Bernstein, E. M. *Money and the Economic System*. Chapel Hill: The University of North Carolina Press, 1935. xi + 516 pp. $3.00.

[20] Woodward, Donald B. and Rose, Marc A., *A Primer of Money*. New York: McGraw-Hill Book Company, Inc., 1935. xviii + 322 pp. $2.50.

Woodward and Rose, combining their former volume of the same name with their essay on *Inflation*. Their earlier work has been revised and new material added. The purpose of the authors, as set forth in their preface, was to write a primer which "argues for no special theory; offers no remedies at all" but sets forth simply "the principles of money, credit and banking" for "the highly improbable person who has never read anything on the subject," and on this basis considers the money problems of today. The result is a vigorous and well balanced discussion which, if not avoiding all the pitfalls of such an attempt, achieves its purpose and consistently holds the attention of the reader. The bibliography is copious and well chosen. The historical summaries, to which much space is given in the book, are too brief, in the judgment of the reviewer, to be fully effective. The authors belong to the school believing in the conscious and deliberate direction of human affairs, but the book is in contact with the practical realities.

How to Understand Banks[21] by John Y. Beaty sets down many of the commonly unexpressed principles underlying the relationship between the bank, its depositors, and its borrowers. It is useful in clarifying the banker's viewpoint, often a puzzle to the man in the street, by describing clearly the basis upon which bank credit rests in terms of these relationships. Frequent examples of banks' practices in specific instances add much to the interest of the book and an understanding of the factors upon which the banker's decision in extending credit must rest.

It lies outside the scope of this article to review Moulton's *The Formation of Capital*[22] or Warren and Pearson's *Gold and Prices*,[23] though both have bearing upon money problems. Moulton's treatise is the third of the Brookings series, and should be considered in conjunction with the other two. It may be noted that an extensive review of Warren and Pearson's new volume was recently published by the Brookings Institution.[24] Among other books in the general field may be mentioned *Silver Dollars* by William P. Shea[25]—which takes up the problem of silver from the point of view of the silver proponents—and *The Meaning of Money* by E. C. Riegel.[26] The last comprises the replies to a general questionnaire upon money by eight of the economists mentioned by Irving Fisher as understanding money. The replies give evidence of careful and patient preparation. The compiler offers certain of his views in commenting upon them.

One of the most striking recent books in the field of money remains to be considered: *Monetary Mischief*, by George Buchan Robinson.[27] It is a keen and sparkling commentary upon money developments in the United States since the War. Though so confined, it may well be read as a counterpoise to the first book treated in this review, Einzig's *World Finance*, since, on many points, it ably presents the opposite conclusions.

[21] Beaty, John Y., *How to Understand Banks*. Chicago: Business Publications, Inc., 1935. 322 pp. $2.50.

[22] Moulton, Harold Glenn, *The Formation of Capital*. Washington: The Brookings Institution, 1935. xii + 207 pp. $2.50.

[23] Warren, George F. and Pearson, Frank A., *Gold and Prices*. New York: John S. Wiley & Sons, Inc., 1935. 475 pp. $5.00.

[24] Hardy, Charles O., *The Warren-Pearson Price Theory*. Washington: The Brookings Institution, 1935. vii + 34 pp. $0.50.

[25] Shea, William P., *Silver Dollars*. New York: G. P. Putnam's Sons. 64 pp. $1.00.

[26] Riegel, E. C. comp., *Irving Fisher's World Authorities on the Meaning of Money*. New York: Empire Books. 183 pp. $2.00.

[27] Robinson, George Buchan, *Monetary Mischief*. New York: Columbia University Press, 1935. xiv + 188 pp. $2.00.

Certain of the author's views—some of them important—would not be accepted by the more conservative economists, but the book gives evidence throughout of recognition of the results of past experience and of past thought upon monetary matters.

For the sources of past and future monetary mischief since our entry into the World War in 1917, Robinson turns to speculation, Federal Reserve policy, the Internal Revenue Act, corporate finance, the investment trust, banking practices, and the government's financial operations and monetary policy. Several of the chapters were previously published as articles in *The Annalist;* and it is a striking evidence of the author's power of analysis that his conclusions on the credit conditions existing just prior to the stock exchange collapse, which are generally accepted today, were written in July, 1929.

Perhaps nothing has contributed more to the popular confusion of thought about money than the identification of currency and bank deposits under the term "money" which has become popular in recent monetary expositions. We can well be grateful, therefore, for the clarity of exposition with which Robinson treats the problem of the growth of bank deposits under the title of "The Monetization of Common Stocks." This is something more than a clever phrase, for in addition to being aptly descriptive of the process of the formation of bank deposits from speculation, it aids greatly in the exposition of the banking process, and in particular of the growth of a huge volume of deposits during the boom period. It also enables the author, while retaining in the reader's mind the monetary implications of the growth of bank deposits, to insist later that there are just two kinds of prime money: "one an amount of precious metal, and the other a good and faithful promise to pay." Our present currency the author regards as the lowest form of money—paper currency redeemable only in itself.

To the criticism of reserve policy written in 1929 is added a chapter written on the basis of subsequently available material. The whole is a striking indictment of monetary management in the past; it is the author's belief that we have no reason to trust such management.

The last section of the book is a powerful critique of the government's monetary policy. The author, who favored some measure of moderate monetary inflation in 1933, believes that the steps actually taken "will plague our economy for years to come." The chief points are that sequestration of gold plus debasement, in the order taken, amounted to confiscation; that the gold clause legislation was a legalization of dishonesty; that the Thomas Amendment provided for progressive inflation —the worst possible kind; and that the aim of restoration of prices to the 1926 level was, in effect, the underwriting of speculation, as it was assumed to be in a certain famous investment in silver. The dollar has not only been debased, but invalidated, and the problem is now one of redefinition. This, the author points out forcibly, is all that is needed; it is beside the point to talk of stabilization, which implies an agreement with other countries that is wholly unnecessary. He proposes restoration of the old parity; if not that, the adoption (at that parity) of a deferred gold standard—i.e., the issuance of money promising convertibility into gold at some future date.[28]

[28] The following book list includes a few additional books in this general field which were not available when this review was prepared.

BOOK LIST

(American Publications, 1935, to August 1)

Accounting and Insurance

Bell, Spurgeon. *Theory and Practice of Accounting.* Chicago: American Technical Society. 395 pp. $3.50.

*Eggleston, De Witt Carl. *Auditing Procedure.* New York: John Wiley & Sons, Inc. Second edition. 488 pp. $4.50.

Gillespie, Cecil Merle. *Accounting Procedure for Standard Costs.* New York: The Ronald Press Company. 431 pp. $5.00. (loose leaf)

Heckert, J. Brooks and Stone, Irving J. *Wholesale Accounting and Control.* New York: McGraw-Hill Book Company, Inc. 234 pp. $3.00.

*Maclean, Joseph B. *Life Insurance.* New York: McGraw-Hill Book Company, Inc. Fourth edition. 610 pp. $4.00.

Miller, I. L. *Business Mathematics.* New York: D. Van Nostrand Company, Inc. 376 pp. $3.50.

*Porter, Charles H. and Fiske, Wyman P. *Accounting.* New York: Henry Holt & Company, Inc. 631 pp. $3.75.

Business Cycle

*†Angas, L. L. B. *The Boom Begins.* New York: Simon & Schuster. 96 pp. $2.00.

*Chicago, University of, Studies in Business Administration, Vol. IV, No. 4. *The Building Industry and Business Cycles*, by William H. Newman. Chicago: The University of Chicago Press. 73 pp. $1.00.

Douglas, Paul H. *Controlling Depressions.* New York: W. W. Norton & Company, Inc. 286 pp. $3.00.

Fisher, Harold. *The Inevitable World Recovery.* Garden City, N. Y.: Doubleday Doran & Company, Inc. 253 pp. $2.00.

†*Harwood, E. C. and Ferguson, Donald G. *Inflation.* Cambridge: American Institute for Economic Research. 64 pp. $1.00. (paper cover)

Jorgenson, Emil Oliver. *The Stagnation of Industry: Its Cause and Cure.* Elkhart, Indiana: James A. Bell Company. 247 pp. $2.00.

†Kiplinger, W. M. and Shelton, Frederick. *Inflation Ahead! What to Do about It.* New York: Simon & Schuster. 42 pp. $1.00. (paper cover)

*†Willis, H. Parker and Chapman, John M. *The Economics of Inflation: The Basis of Contemporary American Monetary Policy.* New York: Columbia University Press. 454 pp. $4.50.

Business and Economic History

Bogart, Ernest L. *Economic History of the American People.* New York: Longmans Green & Company. Second revised edition. 903 pp. $3.50.

*Tilton, Cecil G. *William Chapman Ralston, Courageous Builder.* Boston: Christopher Publishing House. 474 pp. $4.00.

Business Law

Axe, Leonard Henry. *Business Law.* New York: Harper & Brothers Publishers. 678 pp. $3.50.

*Grange, William J. *Corporation Law for Officers and Directors.* New York: The Ronald Press Company. 904 pp. $6.00.

Economic Institutions and Planning

Carver, Thomas Nixon and others. *Our Economic and Community Life.* Philadelphia: John C. Winston Company. 766 pp. $1.60 (previously published in two volumes).

*Davis, Jerome. *Capitalism and Its Culture.* New York: Farrar & Rinehart. 573 pp. $3.00.

Douglas, Lewis W. *The Liberal Tradition; a Free People and a Free Economy.* New York: D. Van Nostrand Company, Inc. 159 pp. $1.50.

* Books received.

† Books noted or reviewed in this issue.

*Ely, Richard T. and Bohn, Frank. *The Great Change*. New York: Thomas Nelson & Sons. 373 pp. $2.00.

McGregor, Alexander Grant. *The Correct Economy for the Machine Age*. New York: Pitman Publishing Corporation. 271 pp. $2.00.

Ryan, John A. *A Better Economic Order*. New York: Harper & Brothers Publishers. 203 pp. $2.50.

Strachey, Evelyn John St. Loe. *The Nature of Capitalist Crisis*. New York: Covici Friede, Inc. 406 pp. $3.00.

Strauss, Samuel. *American Opportunity*. Boston: Little, Brown and Company. 257 pp. $3.00.

Van Kleeck, Mary and Fledderus, Mary L. *On Economic Planning*. New York: Covici Friede, Inc. 275 pp. $3.00.

Wootton, Mrs. Barbara Frances Adam. *Plan or No Plan*. New York: Farrar & Rinehart. 360 pp. $1.60.

Economics

Economic Essays in Honor of Wesley Clair Mitchell. New York: Columbia University Press. 528 pp. $4.25.

Foreman, Clark and Ross, Michael. *The Consumer Seeks a Way*. New York: W. W. Norton & Company, Inc. 223 pp. $2.00.

Gemmill, Paul F. *Fundamentals of Economics*. New York: Harper & Brothers, Publishers. 622 pp. $3.00.

*†Hardy, Charles O. *The Warren-Pearson Price Theory*. Washington, D. C.: The Brookings Institution. 34 pp. 50¢. (paper cover)

Hobson, J. A. *Work and Wealth; a Human Valuation*. New York: Peter Smith, Publisher. Revised edition. 242 pp. $2.75.

Layton, Walter T. and Crowther, Geoffrey. *An Introduction to the Study of Prices*. New York: The Macmillan Company. Revised edition. 287 pp. $4.00.

Leontiev, A. *Political Economy; a Beginner's Course*. New York: International Publishers. 285 pp. $2.00.

Loeb, Harold and others. *The Chart of Plenty*. New York: Viking Press, Inc. 195 pp. $2.50.

†Warren, George F. and Pearson, Frank A. *Gold and Prices*. New York: John S. Wiley & Sons, Inc. 475 pp. $5.00.

Finance and Investment Management

Guthmann, Harry G. *The Analysis of Financial Statements*. New York: Prentice-Hall, Inc. Revised edition. 599 pp. $5.00.

*Illinois, University of, College of Commerce and Business Administration, Bureau of Business Research. Vol. XXXII, Bulletin No. 51. *Changes in the Financial Structure of Industrial Corporations*, by Raymond F. Smith and Arthur H. Winakor. Urbana: University of Illinois. 44 pp.

McKinsey, James O. *Financial Management*. Chicago: American Technical Society. 561 pp. $3.50.

Prime, John H. *Analysis of Industrial Securities*. New York: Prentice-Hall, Inc. 364 pp. $4.00.

Security Markets, The. Findings and recommendations of a special staff of the Twentieth Century Fund: Director of Survey, Alfred L. Bernheim. New York: Twentieth Century Fund. 886 pp. $5.00.

Foreign Trade and International Relations

*de Haas, J. Anton. *The Practice of Foreign Trade*. New York: McGraw-Hill Book Company, Inc. 475 pp. $4.00.

Horn, Paul V. *International Trade; Principles and Practices*. New York: Prentice-Hall, Inc. 747 pp. $5.00.

Mears, Eliot Grinnel. *Maritime Trade of Western United States*. Stanford University Press. 555 pp. $4.00.

Nodel, Wolf Abramovich. *Supply and Trade in the U.S.S.R.* New York: G. P. Putnam's Sons. 176 pp. $1.75. [see Yanson]

Simonds, Frank R. and Emeny, Brooks. *The Great Powers in World Politics; International Relations and Economic Nationalism*. New York: American Book Company. 656 pp. $3.75.

* Books received.

† Books noted or reviewed in this issue.

Taylor, A. E. *The New Deal and Foreign Trade.* New York: The Macmillan Company. 313 pp. $3.00.

Yanson, J. D. *Foreign Trade in the U.S.S.R.* New York: G. P. Putnam's Sons. 176 pp. $1.75. [see Nodel]

Industrial Management and Labor Relations

Balderston, C. Canby. *Executive Guidance of Industrial Relations.* Philadelphia: University of Pennsylvania Press. 445 pp. $3.75.

Balderston, C. Canby and others. *Management of an Enterprise.* New York: Prentice-Hall, Inc. 484 pp. $5.00.

*Diemer, Hugo. *Factory Organization and Administration.* New York: McGraw-Hill Book Company, Inc. 426 pp. $4.00.

Patterson, Samuel Howard. *Social Aspects of Industry.* New York: McGraw-Hill Book Company, Inc. Second edition. 596 pp. $3.00.

*Rose, T. G. *Higher Control.* New York: Pitman Publishing Corporation. 269 pp. $3.00.

Marketing, including Advertising

Aspley, John C. *Getting the Most Out of Salesmen.* Chicago: Dartnell Corporation. 211 pp. $1.50.

Barber, Clare W. and Anderson, Ira D. *Principles of Retailing.* New York: McGraw-Hill Book Company, Inc. 475 pp. $4.00.

Baer, Julius B. and Woodruff, George P. *Commodity Exchanges.* New York: Harper & Brothers Publishers. Third edition. 337 pp. $3.00.

Brewster, Arthur J. and Palmer, Herbert H. *Introduction to Advertising.* New York: McGraw-Hill Book Company, Inc. Third revised edition. 491 pp. $2.00.

Brisco, Norris A. *Retailing.* New York: Prentice-Hall, Inc. 686 pp. $5.00.

Converse, Paul E. *The Elements of Marketing.* New York: Prentice-Hall, Inc. Revised edition. 1107 pp. $5.00.

Elder, Robert F. *Fundamentals of Industrial Marketing.* New York: McGraw-Hill Book Company, Inc. 325 pp. $3.00.

Garside, Alston H. *Cotton Goes to Market.* New York: Frederick A. Stokes Company. 431 pp. $3.50.

Gauss, Chester A. and Wightman, Lucius I. *Sales and Advertising.* Chicago: American Technical Society. 565 pp. $6.00.

*Holtzclaw, Henry F. *The Principles of Marketing.* New York: Thomas Y. Crowell Company. 464 pp. $3.75.

Laird, Donald A. *What Makes People Buy.* New York: McGraw-Hill Book Company, Inc. 247 pp. $2.50.

Larrabee, Carroll B. *How to Package for Profit; A Manual of Packaging.* New York: Harper & Brothers Publishers. 222 pp. $3.50.

Lester, Bernard. *Marketing Industrial Equipment.* New York: McGraw-Hill Book Company, Inc. 317 pp. $3.50.

*Stanford University, Graduate School of Business, Business Research Series, No. 1. *Operating Results of California Retail Stores: 1934,* 19 pp. 25¢.

Trethowan, Harry and others. *Selling Through the Window.* New York: Studio Publications. 158 pp. $7.50.

Money and Banking

*†Angas, L. L. B. *The Problems of the Foreign Exchanges.* New York: Alfred A. Knopf. 330 pp. $3.50.

*†Beach, W. Edwards. *British International Gold Movements and Banking Policy, 1881–1913.* Cambridge: Harvard University Press. 218 pp. $2.50.

*†Bernstein, E. M. *Money and the Economic System.* Chapel Hill: University of North Carolina Press. 527 pp. $3.00.

*Bremer, C. D. *American Bank Failures.* New York: Columbia University Press. 144 pp. $2.25.

*Ebersole, J. Franklin. *Bank Management.* New York: McGraw-Hill Book Company, Inc. Second edition. 508 pp. $5.00.

*†Einzig, Paul. *World Finance, 1914–1935.* New York: The Macmillan Company. 398 pp. $3.00.

* Books received.

† Books noted or reviewed in this issue.

*Ellinger, Barnard. *Credit and International Trade*. New York: The Macmillan Company, 1934. 206 pp. $3.00.

†*Future of Monetary Policy, The*. Report by a group of the Royal Institute of International Affairs. New York: Oxford University Press, Inc. 228 pp. $4.00.

†Gayer, Arthur C. *Monetary Policy and Economic Stabilization*. New York: The Macmillan Company. 301 pp. $3.00.

Gesell, Silvio. *The National Economic Order; Money Part*, translated from the German by Philip Pye. San Antonio, Texas: Free-Economy Publishing Company. 335 pp. $2.75.

*Leffler, Ray B. *Money and Credit*. New York: Harper & Brothers Publishers. 524 pp. $4.50.

†Madden, John T. and Nadler, Marcus. *The International Money Markets*. New York: Prentice-Hall, Inc. 561 pp. $5.00.

*†Mises, Ludwig von. *The Theory of Money and Credit*, translated from the German. New York: Harcourt, Brace and Company. 445 pp. $4.50.

†Riegel, E. C., compiler. *Irving Fisher's World Authorities on the Meaning of Money*. New York: Empire Books. 183 pp. $2.00.

*†Robinson, George Buchan. *Monetary Mischief*. New York: Columbia University Press. 202 pp. $2.00.

Robinson, Louis N. and Nugent, Rolf. *Regulation of the Small Loan Business*. New York: Russell Sage Foundation. 284 pp. $3.00.

*†Shea, William P. *Silver Dollars*. New York: G. P. Putnam's Sons. 64 pp. $1.00.

†Soddy, Frederick. *The Role of Money*. New York: Harcourt, Brace and Company. 224 pp. $2.00.

*†White, Horace. *Money and Banking*. Boston: Ginn and Company. New edition (Charles S. Tippetts and Lewis A. Froman). 808 pp. $3.50.

*Whitney, Caroline. *Experiments in Credit Control*. New York: Columbia University Press. 230 pp. $3.75.

Public Business

Lippincott, Benjamin E., editor. *Government Control of the Economic Order*. Minneapolis: University of Minnesota Press. 127 pp. $1.75.

Transportation and Communication

*League of Nations, Air Transport Coöperation Committee. *Economics of Air Transport in Europe*, by M. Henri Bouché. New York: World Peace Foundation. Final edition. 73 pp. 90¢. (paper cover)

*Ohio State University Studies, Contributions in Economics, No. 1. *The Long and Short Haul Principle of Rate Regulation*, by Ralph L. Dewey. Columbus: The Ohio State University Press. 287 pp. $2.50.

General and Miscellaneous

Brewer, John M. and others. *Elements of Business Training*. Boston: Ginn and Company. 543 pp. $1.48.

Brinkmann, Theodor. *Theodor Brinkmann's Economics of the Farm Business*, translated from the German by Elizabeth Tucker Benedict and others. Berkeley: University of California Press. 182 pp. $2.00.

Doherty, Richard P. and Hartman, Max. *The Economic Organization of Business*. Boston: G. C. Manthome & Company. 291 pp. $3.00.

Egan, Grace S. and others. *An Elementary Study of Business*. Boston: Ginn and Company. 471 pp. $1.40.

Graham, Willard J. *Economics of Business*. Chicago: American Technical Society. 337 pp. $2.00.

Reilly, William J. *Straight Thinking; How to Solve Your Business Problems*. New York: Harper & Brothers Publishers. 178 pp. $1.75.

Rustgard, John. *The Problem of Poverty*. Minneapolis: Midwest Book Company. 166 pp. $1.50.

* Books received.

† Books noted or reviewed in this issue.